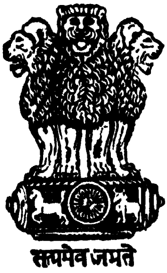

INDIAN AGRICULTURAL
RESEARCH INSTITUTE, NEW DELHI.

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of the

Royal Asiatic Society

Vol. I.

1923.

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APRIL 1923.

SINGAPORE:
Printed At the Methodist Publishing House,
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THE

Malayan Branch

OF THE

Royal Asiatic Society.

Patron.

H. E. Sir Laurence Guillemard, K.C.B., Governor of the Straits Settlements and High Commissioner for the Malay States.

Council for 1923.

The Hon. Mr. W. G. Maxwell, C.M.G.	*President.*
Dr. R. O. Winstedt and Mr. H. Robinson	*Vice-Presidents for the S. S.*
The Hon. Mr. E. S. Hose and Mr. H. C. Robinson	*Vice-Presidents for the F. M. S*
The Hon. Mr. Hayes Marriott and The Hon. Mr. J. L. Humphreys	*Vice-Presidents for the Unfederated States.*
Major J. C. Moulton, O.B.E.	*Hon. Secretary.*
Mr. R. E. Holttum	*Hon. Treasurer.*
Mr. J. Johnston	*Hon. Librarian.*
Dr. G. H. Macalister, Mr. J. E. Nathan, Dr. F. W. Foxworthy and Mr. C. Boden Kloss	*Council.*

Proceedings

of the

Annual General Meeting

The annual general meeting was held at the Selangor Club, Kuala Lumpur 5 p.m. Saturday 10th February 1923.

Present: The Hon: Mr. W. G. Maxwell C.M.G. (in the Chair) and 34 other members.

1. The Minutes of the Annual General Meeting held 10th February 1922 were confirmed.

2. The Annual Report and Statement of Accounts were adopted.

3. The election of Officers and Members of the Council for the current year resulted as follows:—

President	The Hon. Mr. W. G. Maxwell C.M.G. ..
Vice-Presidents for the S. S.	Dr. R. O. Winstedt and Mr. H. Robinson.
Vice-Presidents for the F. M. S.	Mr. H. C. Robinson and the Hon. Mr. E. S. Hose.
Vice-Presidents for the U. M. S.	The Hon. Mr. Hayes Marriott ....and Mr. J. L. Humphreys.
Hon. Secretary	Major J. C. Moulton O.B.E.
Hon. Treasurer	Mr. R. E. Holttum.
Hon. Librarian	Mr. J. Johnston.
Council	Dr. G. H. Macalister, Mr. J. E. Nathan, Mr. C. Boden Kloss and F. W. Foxworthy.

4. Votes of thanks to the Hon. Secretary for his work during the past year, and to Mr. See Teong Wah for kindly auditing the accounts were passed.

5. Dr. W. L. Abbott was elected an Honorary Member.

6. After the official business of the meeting the following papers were read, for the most part illustrated by exhibits:—

Stone Implements in Malaya by Mr. I. H. N. Evans.

The height of trees in Malaya by Dr. F. W. Foxworthy.

Anti-malarial methods by C. N. Maxwell.

Some butterflies and other interesting insects, by H. M. Pendlebury.

Meteorological observations on Gunong Tahan, and notes on some interesting mammals and birds of the Peninsula, by H. C. Robinson.

Malay Mystics of the 17th Century by Dr. R. O. Winstedt.

Dr. Malcolm Watson made some valuable comments on Mr. Maxwell's paper.

The President warmly thanked the speakers for their communications which kept the meeting deeply interested for over an hour. It was decided to print them in the Society's Journal.

7. A vote of thanks to the Chair, proposed by Mr. I. H. Burkill, concluded the meeting.

Annual Dinner

By kind permission of the Committee of the Selangor Club the usual annual dinner was held at that Club, Kuala Lumpur, on Saturday 10th February 1923 at 8.30 p.m.

The President, the Hon. Mr. W. G. Maxwell C.M.G., presided. H. E. the Governor and High Commissioner, Patron of the Society, was present as the guest of the evening. Covers were laid for 52.

After the usual loyal toast, the President extended a hearty welcome to the Society, which for the first time in its history, had held its Annual Meeting away from Singapore. It was a step that signified the broader interests of the Society and as such was one to be welcomed. The large number attending the meeting that afternoon—a record one he believed—and the still larger number at the dinner showed that the move was appreciated. There were three points he desired to call attention to: first in regard to the Journal, he hoped more members would contribute short notes. When Sir William Maxwell (the speaker's father) was the Hon. Secretary of the Society in its early days, the "Notes and Queries" published by the Society contained a wide variety of interesting matter. He hoped this feature could be revived in the Journal. He deplored the absence of ladies, whose assistance should be sought to further the interests of the Society. It was gratifying to learn that several influential Malays had joined the Society during the last two or three years and he hoped that more would be done to enlist the interest and support of Asiatics in this country.

H. E. the Governor in a witty and characteristic speech referred to the pleasure it gave him once again to propose the health of the Society. He recalled various episodes in his early days but regretted that a scientific training was not one of them. In spite of a diligent application to classics, however, he was still able to appreciate the broad-minded views of scientists and it therefore gave him much pleasure to couple the names of Mr. H. C. Robinson and Dr. R. O. Winstedt with the toast of the Society. He referred in eulogistic terms to their work in this country and congratulated the Society on co-operating with them. Time prevented him mentioning other eminent workers in Malaya, but there were many, and by their published works they had made names for themselves.

Mr. Robinson and Dr. R. O. Winstedt replied on behalf of the Society. Mr. C. J. Wilson replied on behalf of the guests and Mr. Boden Kloss in his usual happy vein replied on behalf of the older members, of whom he happened to be the most senior present. His quotation from "Macbeth" with reference to speech-making concluded the evening.

List of Members for 1923.

(as on 1st January, 1923)

* *Life Members.* † *Contributors to the Society's Journal.*

Honorary Members.

Year of Election.	
1890.1918.	†BLAGDEN, C. O., Shirley, 57 Earl's Court Square, London, S. W. 5.
1921.	BRANDSTETTER, PROF. DR. R., Luzern, Switzerland.
1894.1906.	COLLYER, W. R., I.S.O., Hackford Hall, Reepham, Norfolk, England. (Council, 1904: Vice-President, 1897-1900, 1902, 1904-1905).
1903.1917.	†GALLOWAY, DR. D. J., British Dispensary, Singapore. (Vice-President, 1906-1907: President, 1908-1913).
1895.1920.	†HANITSCH, DR. R., 99 Woodstock Road, Oxford, England. (Council, 1897-1919: Hon. Treasurer, 1898-1906, 1910-1911, 1914-1919: Hon. Secretary, 1912-1913).
1922.	JOHORE, H. H. The Sultan of, G.C.M.G., K.B.E., Johore Bahru, Johore.
1921.	PERAK, H. H. The Sultan of, K.C.M.G., The Astana Negara, Bukit Chandan, Kuala Kangsar, Perak.
1878.	†PERHAM, VEN. ARCHDEACON J., Chard, Somerset.
1890.1912.	†RIDLEY, H. N., C.M.G., M.A., F.R.S., 7 Cumberland Road, Kew Gardens, Surrey, England. (Council, 1890-1894, 1896-1911: Hon. Secretary, 1890-1893, 1896-1911).
1916.	SARAWAK, H. H. The Rajah of, Kuching, Sarawak.
1885.	SATOW, SIR ERNEST M., Beaumont, Ottery St. Mary, Devon, England.
1894.1921.	†SHELLABEAR, REV. W. G., D.D., c/o Board of Foreign Missions, 150, Fifth Avenue, New York City, U. S. A. (Council, 1896-1901, 1904: Vice-President, 1913: President, 1914-1918).
1921.	SNOUCK-HURGRONJE, PROF. DR., Leiden, Holland.
1921.	†VAN RONKEL, DR. Professor of Malay, Zoeterwondsche Singel 44, Leiden, Holland.

Corresponding Members.

1920.	†ANNANDALE, N., D.SC., F.A.S.B., Indian Museum, Calcutta.
1920.	†LAIDLAW, F. F., M.A., F.Z.S., Hyefield, Uffculme, Devon.
1920.	†MERRILL, E. D., Ph. D., Director, Bureau of Science, Manila.
1920.	†MOQUETTE, J. P., Kebonsirih 36, Weltevreden, Java.

Ordinary Members.

1903. ABBOTT, W. L., 400 South 15th Street, Philadelphia.
1918. ABDUL-MAJID BIN HAJI ZAINUDDIN, Education Office, Taiping, Perak.
1922. ABDULLAH, Dato Sadia Raja, The Undang of Rembau, Negri Sembilan.
1916. †ABRAHAM, H. C., Bukit Timah, Singapore.
1920. †ABIDIN, ZAINAL, BIN AHMAD, Malay College, Kuala Kangsar.
1909. ADAM, FRANK, The Straits Trading Co., Singapore.
1907. *ADAMS, SIR ARTHUR, K.B.E., Penang.
1921. ADAMS, C. D., Baram, Sarawak.
1910. ADAMS, H. A., Kuching, Sarawak.
1917. ADAMS, J. W., M.R.C.S., L.R.C.P., B.A., M.B., B.C., Medical Health Office, Penang.
1920. ADAMS, P. M., Kuching, Sarawak.
1917. ADAMS, R. H., Topham, Jones and Railton, Ltd., Singapore.
1909. †ADAMS, T. S., Batu Gajah, Perak.
1919. *ADELBORG, F., Jenderata Estate, Telok Anson, Perak.
1922. ALEXANDER, C. S., Kuala Lumpur.
1913. ALLEN, REV. GEORGE DEXTER, M.A., Windermere, St. Thomas Walk, Singapore.
1914. ALLEN, H. C. W., Boustead and Co., Singapore.
1921. ALLEN, L. A., c/o Crown Agents, Whitehall, London.
1917. ALLEN, P. T., B.A., Chinese Protectorate, Singapore.
1921. ALLEN, DR. R., B.SC., Sarawak Oilfields, Miri, Sarawak.
1921. ALLEN, W. H. R., The Straits Trading Co., Penang.
1914. AMERY, REV. A. J., B.D., Outram Road School, Singapore. (Council, 1921).
1921. †ANDREINI, CAPT. E. V., Kapit, Sarawak.
1908. ARTHUR, J. S. W., M.A., Assistant Adviser, Kedah.
1921. AUSTEN, K. W. H., c/o Police Office, Penang.
1908. *AYRE, C.F.C., High School, Malacca.
1921. *AZIZ, UNKU ABDUL, Johore Bahru, Johore.
1915. BADDELEY, F. M., B.A., Under Secretary, Singapore.
1921. BADHEKA, MOHAUL O., 21 Malacca Street, Singapore.
1919. *BAILEY, A. E., Mountmillan, Knowles Hill, Newton Abbott, England.
1915. BAIN, NORMAN K., B.A., Ipoh, Perak.
1922. BAKAR, INCHI ABU, BIN HAMAD, Johore Bahru, Johore.
1912. †BAKER, A. C., M.C., B.A., 7 Upper Beulah Hill, Upper Norwood, London.
1921. *BALL, H., Inspector of Schools, Malacca.
1916. BANKS, H. H., Sanitary Board, Seremban.
1899. *BANKS, J. E., c/o The American Bridge Co., Cambridge, Pa., U. S. A.
1920. BARBOUR, DR. T., Museum of Comparative Zoology,

Harvard University, Cambridge, Mass., U. S. A.
1920. BARDHAM, RAI SAHIB, S.N., Medical School, Singapore.
1921. BARNES, J. R., Kuching, Sarawak.
1922. BARRY, D. M., Ipoh, Perak.
1910. BARTLEY, W., M.B.E., B.A., c/o Secretariat, Singapore.
1921. BAUGHAN, G. E., S. S. Police, Singapore.
1914. BAZELL, C., Malay College, Kuala Kangsar, Perak. (Hon. Librarian, 1916-20: Hon. Treasurer, 1921).
1909. BEAN, A. W., c/o Robinson and Co., Singapore.
1921. BEARD, H., The Asiatic Petroleum Co., Miri, Sarawak.
1921. BELGRAVE, W. N. C., Agric. Dept., Kuala Lumpur.
1913. BELL, V. G., Kuala Lumpur.
1921. BELL, W. C. B., Bell and Co., Singapore.
1921. BENJAMIN, MAJOR E. V., M.C., Asiatic Petroleum Co., Miri, Sarawak.
1910. *BERKELEY, H., F. M. S. Civil Service, Grik, Upper Perak.
1912. BICKNELL, J. W., U. S. Rubber Plantations Inc., Penang.
1885. BICKNELL, W. A., 3 Alexandra Terrace, Exmouth, Devon.
1922. BIGGS, L. A. C., Municipal Office, Penang.
1908. *BISHOP, MAJOR C. F., R.A.
1922. BISHOP, D. A., Principal, Raffles Institution, Singapore.
1921. BLACK, MAJOR K., Tan Tock Seng Hospital, Singapore.
1884. †BLAND, R. N., C.M.G., c/o Messrs. H. S. King and Co., 9 Pall Mall, London, S. W., England. (Council, 1898-1900: Vice-President, 1907-1909).
1921. BLASDELL, REV. R., Anglo-Chinese School, Ipoh.
1910. BOULT, F. F., Limbang, Sarawak.
1919. *BOURNE, G. F., D. P. P.'s Office, Singapore.
1921. BOYD, R., Labour Office, Penang.
1918. *BOYD, W. R., c/o Crown Agents, London.
1915. BOYD-WALKER, J. W., Penang.
1913. †BRADDELL R. ST. J., Braddell Bros., Singapore.
1918. BRADNEY, G. P., Auditor General, F. M. S., Kuala Lumpur.
1921. BRATTON, A. G., Messrs. Guthrie and Co., Singapore. (Council 1921: Hon. Treasurer 1922).
1897. BROCKMAN, SIR EDWARD L., K.C.M.G., 88 Cannon Street, London, E. C. 4.
1909. †BROOKS, C. J., Lebong Tandai, Post Ketaun, Benkoelen, Sumatra.
1909. BROWN, MR. JUSTICE A. V., Johore Bahru, Johore.
1915. BROWN, C. C., D. O. Raub, Pahang.

1910. Brown, D. A. M., c/o Messrs. Brown, Phillips and and Stewart, Penang.
1921. Browne, T. W., Kuala Pilah Estate, Negri Sembilan.
1913. *Bryan, J. M., c/o Messrs. The Borneo Co., Ltd., Fenchurch Street, London, E. C.
1887. Bryant, A. T., Messrs. Bryant and Ryde, Bush Lane Chamber, Bush Lane, London, E. C. 4. (Council, 1907, 1910: Vice-President, 1912, 1914-1916).
1912. †Burkill, I. H., m.a., Director, Botanic Gardens, Singapore. (Council, 1913-17, 1921— : Hon. Secretary, 1914-1917).
1921. Butterfield, H. M., Alor Star, Kedah.
1913. *†Caldecott, Andrew, b.a., c/o Crown Agents, Whitehall, London.
1921. Campbell, F. M., Wardieburn Estate, K. Lumpur.
1916. †Campbell, Professor J. Argyll, m.d., d.s.c., c/o Messrs. W. and F. Haldane, 4 North Charlotte St., Edinburgh, Scotland. (Council, 1917, 1919).
1918. Carpmael, H., Municipality, Singapore.
1921. *Cavendish, A., Taiping, Perak.
1906. Chapman, W. T., Chinese Protectorate, K. Lumpur.
1921. †Chasen, F. N., m.b.o.u., Raffles Museum, Singapore.
1921. Cheers, E., S. S. Police, Trengganu.
1913. *Choo Kia Peng, The Hon. Mr., Kuala Lumpur.
1913. Chulan, Raja, di Ilir, Perak, Kuala Kangsar, Perak.
1921. Clark, H. T., Inspector of Schools, Singapore.
1921. Clark, Dr. W. E. Le Gros, P. M. O., Kuching, Sarawak.
1922. Clarkson, H. T., Raffles Hotel, Singapore.
1921. Clayton, G. E., Cadets' Bungalow, Penang.
1911. *Clayton, T. W., b.a., Adviser, Perlis.
1917. Clifford, G. F. W., c/o J. A. Russell & Co., Kuala Lumpur.
1922. Cochrane, C. W. H., Federal Secretariat, Kuala Lumpur.
1922. Cocker, T. B., Deputy Registrar, Singapore.
1922. Coe, Capt. T. P., m.c., Malayan Civil Service, Kuala Lumpur.
1920. *†Collenette, C. L., Gottire Lodge, Woodford Green, Essex.
1897. *Conlay, W. L., Kuala Lumpur.
1921. Connell, Mrs. J. J., c/o Connell Bros., Singapore.
1899. Cook, Rev. J. A. B., Gilstead, Singapore.
1910. Cook, W. Wallace, c/o The Straits Trading Co., Singapore.
1921. Cooney, A. C., Govt. English School, Alor Star, Kedah.
1920. Cotterill, Walter S., Miri, Sarawak.
1921. Coulson, N., Alor Star, Kedah.
1921. Cowap, J. C., Govt. Analyst's Office, Penang.

1921. Crandell, Miss, Anglo-Chinese Girls School, Penang.
1921. Cranna, Gordon, Y. M. C. A., Singapore.
1917. Crichton, R., Malayan Civil Service, Kuala Kangsar.
1921. Crocker, H. B., Kuching, Sarawak.
1922. Cross, A. B., Seremban.
1917. Cross, Rev. W., M.A., Cavanagh Road, Singapore.
1910. Croucher, F. B., M.B., C.M., c/o Crown Agents, London.
1917. †Cubitt, G. E. S, Conservator of Forests, S. S. and F. M. S., Kuala Lumpur.
1921. Cullen, W. G., c/o Barker and Co., Singapore.
1922. Dalton, H. G., Mersing, Johore.
1910. *Daly, M. D., Alor Star, Kedah.
1918. *David, P. A. F., B.A., Singapore.
1921. Davidson, A. W., c/o Huttenbach Bros., Singapore.
1922. Denny, A., Sungei Pelek Estate, Sepang, Selangor.
1921. Dennys, S. E., Alor Star, Kedah.
1907. Dent, F., M.SC., Ph.D., F.I.C., Government Analyst, Singapore.
1921. Deshmukh, G. B., Botanic Gardens, Singapore.
1903. *Deshon, H. F., F.R.G.S., Southfield, Combe Down, Bath, England.
1921. Dickinson, A. H., c/o Crown Agents, Whitehall.
1897. Dickson, E. A., District Officer, Kinta, Batu Gajah.
1921. *Dickson, P. L., Western House, The Nash, Nottingham.
1920. Dodds, H. B., M.D., General Hospital Singapore.
1921. †Douglas, F. W., D. O., Klang.
1905. †Douglas, R. S., F.R.G.S., c/o Sarawak Agency, 2 Millbank, Westminster, London.
1922. Drury, Capt. F., O.B.E., Free School, Penang.
1921. Dryburgh, A. M., Jelebu, Negri Sembilan.
1910. Dunman, W., Grove Estate, Grove Road, Singapore.
1915. *†Dussek, O. T., Malay College, Tanjong Malim.
1921. Eaton, B. J., O.B.E., Agric. Dept., Kuala Lumpur.
1922. Ebden, W. S., Pekan, Pahang.
1922. Eckhardt, H. C., Telok Anson, Perak.
1922. Edgar, A. T., Suffolk Estate, Sitiawan, F. M. S.
1921. Edwards, S. J., A.R., L.B.A., c/o Messrs. Booty and Co., Singapore.
1885. Egerton, Sir Walter, K.C.M.G., Fir Toll, Mayfield, England.
1921. Elder, Dr. E. A., 4 Battery Road, Singapore.
1918. Elliot, F. M., O.B.E., Treskelly, Maruhull, Dorset.
1922. Elles, B. W., Kuala Lumpur.
1913. Ermen, C., Kuching, Sarawak.
1918. †Evans, I. H. N., M.A., The Museum, Taiping, Perak.

1919. Fahs, C. H., Secretary, Missionary Research Library, 25 Madison Avenue, New York City, U.S. A.
1910. Falshaw, P. S., M.R.C.V.S., Government Veterinary Department, Singapore.
1909. Farrer, R. J., Municipal Offices, Singapore.
1922. Fearon, L. L. F., c/o Fearon & Co., K. Lumpur.
1911. *Ferguson-Davie, Rt. Rev. Dr. C. J., Bishop of Singapore. (Council, 1912-1913).
1909. Ferrier, J. C., c/o The Borneo Co., Soerabaya. Java.
1917. Finlayson, G. A., M.A., M.B., General Hospital, Singapore.
1919. *Finnie, W., Mintlaw Station, Aberdeen.
1910. Firmstone. H. W., Sentosa, Ripple, Dover. (Council, 1918-9; Vice-President, 1920).
1897. *Flower, Major S. S., O.B.E., Zoological Gardens, Ghizeh, Egypt.
1921. Forrer, H. A., Civil Service, Kuala Lumpur.
1921. Foulger, R. G., S. S. Police, Singapore.
1918. †Foxworthy, Dr. F. W., Kuala Lumpur. (Council 1923—).
1921. *Fraser, Hon. Mr. F. W., C.B.E., Government Secretary, Jesselton, British North Borneo.
1922. Fraser, H. J., Messrs. Fraser & Co., Kuala Lumpur.
1908. Freeman. D., c/o Messrs. Freeman and Madge, Kuala Lumpur.
1910. *Frost, Meadows, B.A., Taiping, Perak.
1922. Fuller, J. C., Kuala Kubu, Selangor.
1912. Gallagher. W. J., M.A., U. S. Rubber Plantations, Inc., Medan, Sumatra.
1917. Garnier, Rev. Keppel, Penang.
1920. Geale, Dr. W. J., Ulu Kelantan.
1921. Gibson, L. B.. Cadet, Penang.
1903. Gibson, W. S., B.A.. Legal Adviser, Kuala Lumpur.
1922. Gilman, E. W. F., Kuala Lumpur.
1902. *†Gimlette, Dr. J. D., 18 Pulteney Mansions Bath.
1922. *Glass, Dr. G. S., Municipal Health Officer, Penang.
1916. Glennie, Dr. J. A. R., Municipal Offices, Singapore.
1918. Gloyne, G. B.. Samarang, Java.
1918. Goldie, R. M., United Engineers, Penang.
1916. Goodman, A. M., B.A., Chinese Secretariat. Kuala Lumpur.
1922. Goodwin, R. N., Pinang Gazette's Office, Penang.
1922. Gordon, T. I. M., Asst. Postmaster-General, Singapore.
1920. Gordon-Hall, Capt. W. A., Kuala Lipis, Pahang.
1909. Goulding, R. R., Survey Dept., Kuala Lumpur.
1919. Gow, G. Aubrey, Lebong Tandai, Benkoelen, Sumatra.
1918. Graham, Major A. McD., c/o Crown Agents, London.
1921. Graham, W., Sarawak Oilfields, Miri, Sarawak.

1921. Griffiths, C. S., Kuching, Sarawak.
1911. Griffiths, J., Survey Office, Singapore.
1918. Griffin, N. A. M., c/o Crown Agents, London.
1919. Grist, D. H.. Dept. of Agriculture, Kuala Lumpur.
1922. Gubbins, W. H. W., Seremban.
1916. Gupta, Shiva Prasad, Naudansahu Street, Benares City, United Provinces. India.
1921. Haines, W. A. C., A. C. of Police, Alor Star, Kedah.
1922. Hall, A. C., Singapore.
1907. Hall. G. A., c/o Crown Agents, Whitehall. (Vice-President, 1921).
1914. Hall, J. D., b.a., Government House, Singapore.
1918. Hallaway, J. P., Gas Engineer. Singapore.
1911. *Hallifax, F. J., c/o Crown Agents, London.
1921. Ham, G. L., Colonial Secretary's Office. Singapore. (Council, 1922).
1915. †Hamilton, A. W, Malacca. (Vice-President. 1922).
1918. Hampshire, A. K. E., Kuala Lumpur.
1922. Hampshire, D. H., c/o Boustead & Co., Kuala Lumpur.
1921. Handover, W.P., Sungei Nipah Estate,Port Dickson.
1922. Hanitsch, P. H. V., Johore Bahru, Johore.
1921. Hardie, J. A. H., Kuching. Sarawak.
1909. Harrington, A. G., Municipal Offices, Singapore.
1922. Harrison, C. W., Taiping, Perak.
1922. Harrower, G., m.b., Medical School, Singapore.
1921. Hart, Dr. H. H.. b.a., 3363, Washington Street, San Francisco, California.
1921. Harvey, R. N., S. S. Police, Singapore.
1921. Hashim, Capt., N. M., Parit Buntar, Perak.
1921. Hawkins, G., D. O., Balik Pulau, Penang.
1919. Hay, M. C.. b.a., Asst. Adviser, Batu Pahat, Johore.
1921. Hayes, L. J., c/o Messrs. Fraser and Co., Singapore.
1904. *Haynes, A. S., Kuala Lumpur. (Council. 1920).
1922. Hazlitt. P. K., Kulim, Kedah.
1922. Hellings, G. S., m.c.s., Kuala Lumpur.
1921. Henderson. M. R., Perak Museum, Taiping.
1909. Hennings, W. G.. c/o Mansfield and Co., Singapore.
1917. Hereford, G. A., m.a., Johore Bahru.
1878. Hill, E. C., 26 Highfield Hill, Upper Norwood. London, S. E.
1922. Hill, W. C., Singapore Oil Mills, Havelock Road, Singapore.
1922. Hinde, C. T., Mersing, Johore.
1921. Holgate, M. R.. Malay College, Malacca.
1921. Holleman, W., Sawah Loento, Sumatra.
1922. Holttum, R. E., Assistant Director of Gardens, Singapore. (Hon. Treasurer 1923—).
1921. †Hoops, Dr. A. L.. p. c. m. o., Singapore.
1917. *Hose, Dr. Charles, f.r.g.s., Redleaf, Riddledown Road, Purley, Surrey.

1897.	Hose, The Hon. Mr. E. S., The Residency, Seremban.
1922.	Howlett, Capt. J. H., m.c., b.a., Agric. Dept., Kuala Lumpur.
1891.	†Hoynck, van Papendrecht, P. C., Le Tanglin, Avenue Trespoey, Pau, Basses, Pyrenees, France.
1909.	Hubback, T. R., Kuala Lipis, Pahang.
1922.	Huggins, Capt. J., m.c., Kajang. F. M. S.
1909.	Hughes, J. W. W., Police Magistrate, Penang.
1907.	†Humphreys, The Hon. Mr. J. L., Trengganu. (Vice-President, 1922—).
1922.	Hunt, Capt. H. North, Batu Pahat, Johore.
1921.	Hunter, Dr. P. S., Municipal Offices, Singapore.
1922.	Irvine, Capt. R., m.c., Rembau.
1921.	Irving, The Hon. Mr. G. C., The Residency, Jesselton, B. N. Borneo.
1921.	Ismail bin Bachok, Dato, d.p.m.j., Johore Bahru, Johore.
1921.	Ivens, F. B., Bannion and Bailey, Kuala Lumpur.
1921.	*Ivery. F. E., Kedah.
1921.	Jacques, Dr. F. V., Medical Officer, Seremban.
1921.	Jaffar, Inche Onn bin, Johore Bahru, Johore.
1922.	Jago, E., Dept. of Agriculture, Kuala Lumpur.
1921.	Jalaludin, Ahmed, Malay College, Kuala Kangsar.
1918.	*James, D., Goebilt. Sarawak.
1916.	James, The Hon. Sir F. S. James, k.b.e., c.m.g., Colonial Secretary, Singapore.
1910.	Jamieson. Dr. T. Hill, 4 Bishop Street, Penang.
1907.	Janion, E. M., 5 Gracechurch St., London, E. C. 3.
1918.	Jansen, P., T., Pzn., Lebong Tandai, Post Ketaun, Benkoelen, Sumatra.
1918.	Jeavons, F. C., Sione Estate, Batu Caves. Selangor.
1921.	*Jermyn, L. A. S., Education Dept., Taiping.
1911.	Jelf, A. S., Civil Service, Singapore.
1910.	Johnson, B. G. H., Telok Anson, Perak.
1911.	Johnson, H. S. B., c/o The Borneo Co., Ltd., 28 Fenchurch Street, London, E. C.
1920.	Johnston, J., Librarian. Raffles Library, Singapore. (Hon. Librarian, 1921—).
1918.	*Jones, E. P., Fleet Paymaster, 20 Waterbell Street, Rye. Sussex, England.
1910.	Jones, H. W., Kuala Kubu, Selangor.
1913.	Jones, S. W., District Officer, Kuala Lipis, Pahang.
1919.	*Jordan. A. B., Chinese Protectorate, Seremban.
1921.	Joy, M. M., Asiatic Petroleum Co., Miri, Sarawak.
1916.	Kamaralzaman, Raja, bin Raja Mansur, Tapah, Perak.
1921.	Kassim, Tunku, bin Sultan Abdul Hamid Halimshah, Supdt. of Monopolies and Customs, Alor Star, Kedah.

1916. Kellagher, G. B., 50 Greenvale Road, Eltham, London. S. E. 9.
1921. *Kellie, J., Johore Bahru, Johore.
1909. Kemp, Hon. Mr. W. Lowther, c/o Messrs. F. W. Barker and Co., Singapore.
1913. Kempe. J. E., c/o Crown Agents, London.
1922. *Ker, W. P. W., Paterson, Simons & Co., Singapore.
1920. *Kerr, Dr. A. F. G., Govt. Botanist, Bangkok, Siam.
1921. Kinder, C. S., S. S. Police, Singapore.
1920. King, E. M., Kong Lee (Perak) Plantations Ltd., Bagan Serai.
1916. Kinsey. W. E., Forest House, Seremban.
1921. Kitching, T., District Surveyor, Kuala Kangsar.
1900. †Kloss, C. Boden, F.Z.S. The Museum, Kuala Lumpur. (Council, 1904-08. 1923: Vice-President, 1920-21).
1915. Knight, Valentine, Fairgoxen Cottage, Glemsford, Suffolk. England. (Hon. Treasurer, 1920).
1920. Koek, E. R., 29 Malacca Street, Singapore.
1920. Kortright. F. H., Bau. Sarawak.
1922. Lacomble, J. A., Controleur B. B. Talock, Indragiri, Sumatra.
1914. Lambourne, J., Castleton Estate, Telok Anson, Perak.
1920. Law, Capt. H. R. S., c/o The Asiatic Petroleum Co., Ltd., Singapore.
1906. †Lawrence, A. E., Mukah, Sarawak.
1921. Lee, J. Romanis-, St. John's Hall, Hongkong.
1921. *Lee, L. G., Labu Estate, British North Borneo.
1922. Leech, R. F. V., Raub, Pahang.
1922. *Leggate, J., Prai, Province Wellesley.
1913. Leicester, Dr. W. S., Kuantan, Pahang.
1917. Lemberger, V. V., c/o The United Engineers, Ltd., Singapore.
1894. *Lemon, A. H. C.M.G., c/o Crown Agents, London. (Vice-President, 1916-18).
1920. Lendrick, J., Norregate 34, Aarhus, Denmark.
1890. Lewis, J. E. A., B A., Harada Mura, Kobe, Japan.
1922. Leyne, E. G., Kajang, F. M. S.
1897. Lim Boon Keng, Dr., O.B.E., M.D., c/o The Dispensary, Singapore. (Council, 1921).
1915. Lim Cheng Law, Millview, Penang.
1921. Lindon. N. L., S. S. Police, Singapore.
1918. Loh Kong Imm, Sepang-Tanah Merah Estate, Sepang, Selangor.
1914. Lornie, J., Land Office, Singapore.
1921. Lowe, Capt. C. P., Kuching, Sarawak.
1922. Lowinger, V. A., Surveyor General, Kuala Lumpur.
1918. Lucy, G. H. R., M.R.C.S., c/o Crown Agents. London.
1921. Lynch, J. R., c/o F. M. S. Railways, Singapore.

1907. *Lyons, Rev. E. S., c/o Methodist Publishing House, Manila, P. I.

1918. Macalister, G. H., M.A., B.Ch., M.D., D.P.H., M.R.C.S., Medical School, Singapore. (Council, 1922—).

1920. MacBryan, G. T. M., Kapit, Sarawak.

1910. *†MacFadyen, Eric, c/o Sports Club, London.

1920. Mackie, Vivian, Kuala Lumpur.

1922. Mackness, L. R., Kuala Lumpur.

1910. MacLean, L., Singapore.

1921. Macmillan, I. C., A. S. P., Penang.

1921. Madge, E. E., Juasseh Estate, Kuala Pilah.

1918. Madge, Raymond, Kuala Lumpur.

1920. Mahmud, Raja, bin Raja Ali, Agriculture Dept., Kuala Lumpur.

1904. Mahomed, Hon. Dato, bin Mahbob, Johore Bahru.

1903. Makepeace, W., c/o Singapore Free Press, Singapore. (Council, 1914, 1916, 1920: Hon. Librarian, 1909-1912: Vice-President, 1917: Hon. Secretary, 1918-1919).

1921. Malet, A. H., Singapore.

1921. Manchester, H. L., Municipality, Singapore.

1922. Mann, G. E., M.C., B.A., Kuala Lumpur.

1916. Mann, W. E., Chinese English School, Samarang, Java..

1922. Mansfield, J. T., Cable Depot, Keppel Harbour, Singapore.

1922. Mansur, Tengku, bin Sultan Abdullah Hamid Halimshah, District Officer, Kulim.

1907. *Marriner, J. T., Kuantan, Pahang.

1902. †Marriott, The Hon. Mr. H., B.A., General Adviser, Johore. (Council, 1907-1908, 1910-1913, 1915-1918: Vice-President, 1919).

1909. Marsh, F. E., Municipal Offices, Singapore.

1920. Marsh, W., Municipality, Singapore.

1909. Marshall, Harold B., 8 Medina Villas, Hove, Sussex.

1918. Martin, T. A., North Lansdale, B. C., Canada.

1921. Maruzon and Co., Ltd., Tokyo, Japan.

1921. Mather, N. F. H., The Fort, Klang.

1921. †Maxwell, C. N., Kuala Lumpur.

1903. †Maxwell, Hon. Mr. W. G., C.M.G., Chief Secretary Kuala Lumpur. (Council, 1905, 1915: Vice-President, 1911-1912, 1916, 1918, 1920: President, 1919, 1922—).

1922. May, P. W., Poste Restante, Singapore.

1909. McArthur, M. S. H., c/o Crown Agents, Whitehall.

1920. McCabe, Dr. J. B., M.C., M.B., Ch.B., Kapoewas Estate, Pontianak, West Borneo.

1897. McCausland, C. F., Kuala Lumpur.

1922. McClelland, Hon. Mr. F. A. S., Kuala Lumpur.

1920. McIver, Miss Agnes, Kuala Lumpur.
1921. McLeod, D., King Edward's School. Taiping, Perak.
1914. †Mead, J. P., Forest Dept., Kuching, Sarawak.
1920. Millar, J. W. R.. Port Dickson.
1921. *Miller, J. I., Kuala Kangsar.
1910. Miller, T. C. B., Fairlie, Nassim Road, Singapore.
1921. Mills, Commander, J. F., r.n., i.s.o., c/o Crown Agents, London.
1922. Mjoberg, Dr., E.. Curator, Sarawak Museum, Kuching.
1921. Moffat, R. M., Asiatic Petroleum Co., Miri, Sarawak.
1922. Mohamad, Tengku, bin Sultan Abdul Hamid Halimshah, Mersing, Johore.
1922. Mohamad, Ismail Merican, bin Vafoo Merican Noordin, Alor Star, Kedah.
1921. Mohammed. Syed, bin Syed Ali Idid, Chief Magistrate, Alor Star, Kedah.
1921. Morgan, S., Wilde and Co., Ltd., 12 Market, St., Kuala Lumpur.
1920. *Morkill, A. G., c/o Crown Agents. London.
1922. Morse, G. S., 27 Grange Road, Singapore.
1921. *Mouat, Dr. J. R. Kay, King Edward VII Medical College, Singapore.
1909 *†Moulton, Major J. C., o.b.e.. m.a., b.sc., Director, Raffles Museum and Library, Singapore. (Council, 1916— : Hon. Secretary, 1920—).
1920. Mowbray, G. A., de Chede, Asst. District Officer, Kuala Kangsar.
1915. *Mundell, H. D., c/o Sisson and Delay. Singapore. Singapore.
1920. Murison, Hon. Sir J. W., Singapore. (President, 1920-21: Vice-President 1922).
1913. Murray, Rev. W., m.a., Gilstead Road, Singapore.
1921. Nagalingam. C. K., Anglo-Chinese School, Port Swettenham.
1917. Nagle, Rev. J. S., m.a., Singapore.
1922. Nash, G. H. Johore Bahru.
1909. †Nathan, J. E., ba., Singapore. (Council 1922--).
1921. Nathan, S. J., Sarawak Oilfields, Miri. Sarawak.
1921. Neilson, Major J. B., m.c., Education Dept.. Alor Star, Kedah.
1920. Neubronner, A. W., 1 Killiney Road, Singapore.
1920. Neubronner, C. A., 47-48 Orchard Road, Singapore.
1910. Niven, W. G., 11 Derby Crescent, Kelvinside, Glasgow, Great Britain.
1900. Norman, Henry, Alor Star, Kedah.
1920. Norris F. de la Mare, b. sc., f.e.s., Kuala Lumpur.
1906. Nunn, B., Butterworth, Province Wellesley.
1920. Nutt, W., o.b.e., Singapore.

1922.	O'Connell, Lt. B. M., R.N., Kepong, Selangor.
1911.	O'May, J., c/o Messrs. Barker and Co., Kuala Lumpur.
1916.	Ong Boon Tat, 37 Robinson Road, Singapore.
1921.	Ong Thye Ghee, 39-2 Dickson Road, Singapore.
1921.	Orchard. H. A. L., St. Andrew's School, Singapore.
1921.	Osborne, R. B., M.V.O., M.C., c/o Crown Agents, Whitehall.
1920.	O'Sullivan, T. A., Kuala Lipis, Pahang.
1922.	O'Sullivan, W. B., B.A., Ipoh. Perak.
1920.	Othman, Megat. Secretary to Majlis Ugama Islam, Kota Bahru, Kelantan.
1913.	†Overbeck, H., c/o Behn Meyer and Co., Mij. Soerabaja, Java.
1922.	Owen, G. N., Jesselton, B. N. Borneo.
1922.	Page-Turner, F. W., Simanggang, Sarawak.
1919.	Park, Mungo, Pontian, Pekan, Pahang.
1921.	Parnell, E., Kuching, Sarawak.
1908.	*†Parr, The Hon. Major C. W. C., O.B.E., British Resident, Perak.
1922.	Pasqual, J. C., Penang.
1921.	*Paterson, Major H. S., Civil Service, Trengganu.
1921.	Peach, Rev. 4 Mount Sophia, Singapore.
1921.	Pedlow, J., Penang.
1922.	Peel, Hon. Mr. W., British Adviser, Kedah.
1921.	*Pendlebury, H. M., The Museum, Kuala Lumpur.
1914.	†Pepys, W. E., Secretariat, Kuala Lumpur.
1920.	Perkins, C. J., Survey Dept., Kuala Lumpur.
1917.	Perkins, D. Y., Messrs. Drew and Napier, Singapore.
1920.	Peskett, A. D., 74 Maxwell Road, Penang.
1920.	Peters, E. V., Kuala Kemaman, Trengganu.
1921.	*Plummer, W. P., Messrs. Derrick & Co., Singapore.
1921.	Ponnambalam, P. N., Johore Bahru, Johore.
1910.	Pratt, Capt. E., Malacca.
1921.	Price, C. W. H., S. S. Police, Singapore.
1906.	Pykett, Rev. G. F., M. E. Mission, Penang.
1921.	Raffles, Major Stamford, O.B.E., Deputy Commissioner of Trade, and Customs, Kuala Lumpur.
1915.	Raggi, J. G., Phlab Phla Jai Road, Bangkok, Siam.
1917.	Rattray, Dr. M., Europe Hotel, Singapore.
1916.	Rayman, L., c/o Fed. Secretariat, Kuala Lumpur.
1910.	*Reid, Dr. Alfred. Kuala Lumpur.
1921.	Reis, H. C., Asiatic Petroleum Co., Miri, Sarawak.
1921.	Rex, Marcus, Kuala Lumpur.
1915.	Richards, A. F., c/o Secretariat, Singapore.
1921.	Richards, Major F. W., D.S.O., M.C., Sarawak Oilfields, Miri, Sarawak.
1911.	Richards, R. M., The Caledonia Estate, Province Wellesley.

1918.	Ritchie, C., The Sagga Rubber Estates, Siliau, F.M.S.
1912.	Robertson, J., Lyall and Evatt, Singapore.
1911.	Robinson, H., c/o Messrs. Swan and Maclaren, Singapore. (Council, 1916-1920: Vice-President, 1922—).
1904.	†Robinson, H. C., The Museum, Kuala Lumpur. (Vice-President, 1909, 1913, 1922— : Council, 1920).
1916.	Rogers, A., H.M.I.C.E., Penang.
1921.	Ross, E. A., Labour Office, Penang.
1896.	Rostados, E., Padang Malau Estate, Perlis. (Council, 1901).
1922.	Russell, D. J. A., Kuala Lumpur.
1921.	Ruston, J. A. V., McNeill and Co., Samarang, Java.
1921.	Rutter, Major E. O., Wattisfield Croft, Suffolk, England.
1922.	Said, Capt. Haji Mohamad, Bukit Timbalan, Johore.
1921.	Salleh, Inche Mohamed bin Ali, S.M.J., Postmaster-General, Johore Bahru, Johore.
1921.	Sanguinetti, Major W. R., O.B.E., M.A., State Engineer, Alor Star, Kedah.
1919.	Santry, Denis, c/o Swan and Maclaren, Singapore.
1920.	Sathasivam, M., Public Works Dept., Johore Bahru.
1921.	Sauchelli, V., Kent Estate, Batu Caves, Selangor.
1896.	*Saunders, The Hon. Mr. C. J., B.A., Official Assignee, Singapore. (Vice-President, 1910-1911, 1914-1915: President, 1916-1918).
1920.	Scharff, Dr. J. W., Health Office, Singapore.
1921.	Schider, Dr. R., Asiatic Petroleum Co., Miri, Sarawak.
1920.	*Scott, Dr. G. Waugh, Sungei Siput, Perak.
1910.	Scott, R., B.A., Penang.
1906.	†Scrivenor, J. B., Govt. Geologist, Batu Gajah, Perak. (Vice-President, 1922).
1888.	Seah Liang Seah, c/o Chop Chin Hin, Singapore.
1921.	Sear, Duncombe, Barker & Co., Kuala Lumpur.
1915.	*See Tiong Wah, c/o Hongkong and Shanghai Bank, Singapore.
1922.	Sehested, S, 7 Battery Road, Singapore.
1918.	Sennett, C. W. A., B.A., Temerloh, Pahang.
1922.	Shaw, G. E., Land Office, Kulim, Kedah.
1922.	Shelley, M. B., Kuala Lumpur.
1922.	Shelley-Thompson, A. J., Singapore.
1921.	Sheriff, Mohamed, bin Osman, Under Secretary, Alor Star, Kedah.
1921.	Simpson, P., Presgrave and Mathews, Penang.
1909.	*Sims, W. A., c/o Commercial Union Assurance Co., Singapore.

1921. Sircom, H. S., Kuala Lumpur.
1921. Skrine, W. F. de V., Kuching, Sarawak.
1922. Small. A. S., Education Office, Kuala Lumpur.
1922. Smart, Dr. A. G. H., Kedah.
1921. Smart, W., Sarawak Oilfields, Miri, Sarawak.
1912. Smith, Harrison W.. Papeete, Tahiti.
1921. Smith, Dr. G. T. Foster, Asiatic Petroleum Co., Miri, Sarawak.
1921. Smith, Capt. S. R., O.B.E., P. W. D., Kuala Lipis.
1920. Soh Yiew Jin, 119 Devonshire Road, Singapore.
1910. Song Ong Siang, Hon. Mr., M.A., LL.M.. c/o Messrs. Aitken and Ong Siang, Singapore.
1921. South, F. W., Dept. of Agriculture, Kuala Lumpur.
1918. Stanton. Dr. A. T., Kuala Lumpur.
1910. Steedman, R. S., Rahman Hydraulic Tin, Intan, Perak.
1920. Stevens. F. G., Rodyk and Davidson, Singapore.
1910. *Still, A. W., c/o Straits Times, Singapore. (Council, 1914-1915).
1917. *†Stirling, W. G., Singapore.
1922. Stonor, Hon. Mr. O. F.. British Resident, Selangor.
1921. Stooke, G. Beresford, Kuching, Sarawak.
1921. Stowell, de la M., Malay College, Kuala Kangsar.
1911. Stuart. E. A. G., Alor Star, Kedah.
1921. Stubington, W. H., Bentong, Pahang.
1910. †Sturrock, A. J. Ipoh.
1922. Summerhayes, R., B.Sc.. Swan and Maclaren, Singapore.
1917. Sumner, H. L., c/o Crown Agents. London.
1921. Sutcliffe, H., R. G. A. Research Laboratory, Pataling, Selangor.
1912. Swayne, J. C.. Bintulu, Sarawak.
1918. *Sykes, G. R., M.A., Chinese Protectorate, Singapore.
1908. Tan Cheng Lock. 59 Heerén Street, Malacca.
1913. Taylor. Lt. Clarence J., Telok Manggis Estate, Sepang, Selangor.
1921. Taylor, E. R., Estates Dept., Singapore Harbour Board, Singapore.
1917. Tennent, M. B., Chiengmai. Siam.
1921. Terrell, A. K. A. Beckett, Presgrave and Mathews, Penang.
1921. *Thomas, L. A., Asst. Supt. of Police, Singapore.
1920. Thompson, The Hon. Mr. H., B.A., British Resident, Pahang.
1922. Thompson, S. L., Boustead & Co., Penang.
1921. Trewin, H. P., Govt. Printing Office, Singapore.
1921. Tyte, Lt. Col. J. H., Inspector of Prisons, Singapore.
1918. Uda, Raja, Kuala Pilah, Negri Sembilan.
1918. Valpy, G. C., B.A., Income Tax Office, Singapore.

1887. †Van Beuningen van Helsdingen, Dr. R., 74 River Valley Road, Singapore. (Hon. Librarian, 1914-1915, 1920).
1922. Vears, Lindsay, Kuala Lumpur.
1921. Vissers, W. D., Netherland Consular Service, Singapore.
1921. Wade, F. W., Architect, P. W. D., Alor Star, Kedah.
1921. Walton, B. S., Govt. Monopolies, Penang.
1922. Walker, E. G., United Engineers, Singapore.
1909. Ward, A. B., Kuching, Sarawak.
1922. Ward, D. J., 40-5 Grange Road, ingapore.
1920. Warner, Capt. W. H. Lee, Singapore.
1917. Watson, J., Education Office, Kuala Lumpur.
1916. Watson, J. G., Forest Dept., Johore Bahru, Johore.
1916. Watson, Dr. Malcolm, Klang, Selangor.
1921. Webb, Major G. R. H., O.B.E., E. E. Telegraph Co., Singapore.
1920. Weisberg, H., District Officer, Jelebu, Negri Sembilan.
1910. Whitehead, C. B., Police Office, Butterworth Province Wellesley.
1920. *†Wilkinson, R. J., C.M.G., Poste Restante, Mitylene, Greece.
1921. †Willbourne, E. S., Assistant Geologist, Batu Gajah, Perak.
1922. Williams, E. B., Seremban, Negri Sembilan.
1921. Williams, E. T., c/o Secretariat, Singapore.
1922. *Williams, F. L., Chinese Protectorate, Ipoh.
1921. Williams, R. M., Paterson, Simons & Co., Singapore.
1910. Williams, S. G., Municipal Offices, Singapore.
1919. Wilson, F. K., Segamat, Johore.
1921. Wilson, Dr. W. B., M.C., 4 Battery Road, Singapore.
1910. *Winkelmann, H., Singapore.
1904. †Winstedt, R. O., M.A., D.LITT., Singapore. (Vice-President, 1914-15, 1920-21, 1923—).
1918. Wolde, B., Lavng Tujoh Estate, Padang Serai, via Penang.
1902. Wolff, The Hon. Mr. E. C. H., B.A., Director of Education, Singapore.
1908. *Wood, E. G., c/o Messrs. Henry S. King & Co., London.
1913. Wood, W. L., The Cedars, Balsham, Cambridge.
1922. Woodgate, L. C. H., St. Andrews' School House, Singapore.
1922. Woodward, The Hon. Sir L. M., Chief Judicial Commissioner, Kuala Lumpur.
1920. †Woolley, G. C., Sandakan, British North Borneo.
1922. Woolley, H. W., Forest Dept., Kuala Lumpur.
1922. Worley, N. A., Kuala Lumpur.
1911. Worsley-Taylor, F. E., Singapore.

1905. *WORTHINGTON, THE HON. MR. A. F., British Adviser, Kelantan.
1921. WURTZBURG, C. E., M.C., c/o Messrs. Mansfield & Co., Singapore.
1914. WYLEY, A. J., Lebong Tandai, Benkoelen, Sumatra.
1922. YAHYA, TENGKU WAN, BIN TUAN MOHAMAD TAIB, Secretary to Government, Alor Star, Kedah.
1917. *YATES, MAJOR W. G., West Kent Regiment, Cox and Co., 16 Charing Cross, London.
1920. *YEWDALL, CAPT. J. C., Sitiawan, Lower Perak.
1916. YOUNG, E. STUART, 85 Wilbraham Road, Chorlton-cum-Hardy, Manchester, England.
1904. *YOUNG, H. S., Rosemount, Tain, Rosshire, Scotland.

RULES

of

The Malayan Branch

of the

Royal Asiatic Society.

I. Name and Objects.

1. The name of the Society shall be 'The Malayan Branch of the Royal Asiatic Society.'

2. The objects of the Society shall be:—

(*a*) The increase and diffusion of knowledge concerning British Malaya and the neighbouring countries.

(*b*) the publication of a Journal and of works and maps.

(*c*) the formation of a library of books and maps.

II. Membership.

3. Members shall be of three kinds—Ordinary, Corresponding and Honorary.

4. Candidates for ordinary membership shall be proposed and seconded by members and elected by a majority of the Council.

5. Ordinary members shall pay an annual subscription of $5 payable in advance on the first of January in each year. Members shall be allowed to compound for life membership by a payment of $50. Societies and Institutions are also eligible for ordinary membership.

6. On or about the 30th of June in each year the Honorary Treasurer shall prepare and submit to the Council a list of those members whose subscriptions for the current year remain unpaid. Such members shall be deemed to be suspended from membership until their subscriptions have been paid, and in default of payment within two years shall be deemed to have resigned their membership.

No member shall receive a copy of the Journal or other publications of the Society until his subscription for the current year has been paid.*

***Bye-Law, 1922.** " Under Rule 6 Members who have failed to pay their subscription by the 30th June are suspended from membership until their subscriptions are paid. The issue of Journals published during that period of suspension cannot be guaranteed to members who have been so suspended. "

7. Distinguished persons, and persons who have rendered notable service to the Society may on the recommendation of the Council be elected Honorary Members by a majority at a General meeting. Corresponding Members may, on the recommendation of two members of the Council, be elected by a majority of the Council, in recognition of services rendered to any scientific institution in British Malaya. They shall pay no subscription: they shall enjoy the privileges of members (except a vote at meetings and eligibility for office) and free receipt of the Society's publications.

III. Officers.

8. The Officers of the Society shall be:—

A President.

Vice-Presidents not exceeding six, ordinarily two each from (i) the Straits Settlements, (ii) the Federated Malay States and (iii) the Unfederated or other Protected States, although this allocation shall in no way be binding on the electors.

An Honorary Treasurer. An Honorary Librarian.

An Honorary Secretary. Four Councillors.

These officers shall be elected for one year at the Annual General Meeting, and shall hold office until their successors are appointed.

9. Vacancies in the above offices occurring during any year shall be filled by a vote of the majority of the remaining officers.

IV. Council.

10. The Council of the Society shall be composed of the officers for the current year, and its duties and powers shall be:—

(*a*) to administer the affairs, property and trusts of the Society.

(*b*) to elect Ordinary and Corresponding Members and to recommend candidates for election as Honorary Members of the Society.

(*c*) to obtain and select material for publication in the Journal and to supervise the printing and distribution of the Journal.

(*d*) to authorise the publication of works and maps at the expense of the Society otherwise than in the Journal.

(*e*) to select and purchase books and maps for the Library.

(*f*) to accept or decline donations on behalf of the Society.

(*g*) to present to the Annual General Meeting at the expiration of their term of office a report of the proceedings and condition of the Society.

(*h*) to make and enforce bye-laws and regulations for the proper conduct of the affairs of the Society. Every such bye-law or regulation shall be published in the Journal.

11. The Council shall meet for the transaction of business once a month and oftener if necessary. Three officers shall form a quorum of the Council.

V. General Meetings.

12. One week's notice of all meetings shall be given and of the subjects to be discussed or dealt with.

13. At all meetings the Chairman shall in the case of an equality of votes be entitled to a casting vote in addition to his own.

14. The Annual General Meeting shall be held in February in each year. Eleven members shall form a quorum.

15. (i) At the Annual General Meeting the Council shall present a Report for the preceding year and the Treasurer shall render an account of the financial condition of the Society. Copies of such Report and account shall be circulated to members with the notice calling the meeting.

(ii) Officers for the current year shall also be chosen.

16. The Council may summon a General Meeting at any time, and shall so summon one upon receipt by the Secretary of a written requisition signed by five ordinary members desiring to submit any specified resolution to such meeting. Seven members shall form a quorum at any such meeting.

17. Visitors may be admitted to any meeting at the discretion of the Chairman but shall not be allowed to address the meeting except by invitation of the Chairman.

VI. Publications.

18. The Journal shall be published at least twice in each year, and oftener if material is available. It shall contain material approved by the Council. In the first number in each year shall be published the Report of the Council, the account of the financial position of the Society, a list of members, the Rules, and a list of the publications received by the Society during the preceding year.

19. Every member shall be entitled to one copy of the Journal, which shall be sent free by post. Copies may be presented by the Council to other Societies or to distinguished individuals, and the remaining copies shall be sold at such prices as the Council shall from time to time direct.

20. Twenty-five copies of each paper published in the Journal shall be placed at the disposal of the author.

VII. Amendments to Rules.

21. Amendments to these Rules must be proposed in writing to the Council, who shall submit them to a General Meeting duly summoned to consider them. If passed at such General Meeting they shall come into force upon confirmation at a subsequent General Meeting or at an Annual General Meeting.

Affiliation Privileges of Members.

Royal Asiatic Society. The Royal Asiatic Society has its headquarters at 74 Grosvenor Street, London, W., where it has a large library and collection of MSS. relating to oriental subjects, and holds monthly meetings from November to June (inclusive) at which papers on such subjects are read.

2. By Rule 105 of this Society all the Members of Branch Societies are entitled when on furlough or otherwise temporarily resident within Great Britain and Ireland, to the use of the Library as Non-Resident Members and to attend the ordinary monthly meetings of the Society. This Society accordingly invites Members of Branch Societies temporarily resident in Great Britain or Ireland to avail themselves of these facilities and to make their home addresses known to the Society so that notice of the meetings may be sent to them.

3. Under Rule 84, the Council of the Society is able to accept contributions to its Journal from Members of Branch Societies, and other persons interested in Oriental Research, of original articles, short notes, etc., on matters connected with the languages, archæology, history, beliefs and customs of any part of Asia.

4. By virtue of the afore-mentioned Rule 105 all Members of Branch Societies are entitled to apply for election to the Society without the formality of nomination. They should apply in writing to the Secretary, stating their names and addresses, and mentioning the Branch Society to which they belong. Election is by the Society upon the recommendation of the Council.

5. The subscription for Non-Resident Members of the Society is 30/- per annum. They receive the quarterly journal post free.

Asiatic Society of Bengal. Members of the Malayan Branch of the Royal Asiatic Society, by a letter received in 1903, are accorded the privilege of admission to the monthly meetings of the Asiatic Society of Bengal, which are held usually at the Society's house, 1 Park Street, Calcutta.

Exchange List and Donations, 1922.

The following is a list of the Scientific Institutions and Societies on our Exchange List, together with the Publications received from them during the year 1922.

A list of Donations to the Society's Library is also appended.

AMERICA.

Canada.

TORONTO. Royal Canadian Institute, *Transactions, Vol. 13, Pt. 2, 1921, Vol. 14, Pt. 1, 1922.*

United States of America.

BALTIMORE. John Hopkins University.

BERKELEY. University of California, *Publications in Zoology, Vol. 20, Nos. 8-13, 1922, Vol. 21, Nos. 7-8, 1922.*

CAMBRIDGE. Museum of Comparative Zoology, Harvard, *Bulletin,*
(i) *Bulletin, Vol. 65, Nos. 3-4, 1921.*
(ii) *Annual Report, 1920-21*

CHICAGO. Field Museum of Natural History.

CHICAGO. University of Michigan.

CHICAGO. John Crerar Library, *Annual Report, 1920, 1921.*

LINCOLN. University of Nebraska, *Circulars 14-15, 1922, from the Agricultural Experiment Station.*

NEW YORK. American Museum of Natural History.

NEW YORK. New York Zoological Society, *Zoologicae, Vol. 3, Nos. 3-13, 1921.*

NEW YORK. American Geographical Society, "*Geographical Review.*" *Vol. 12, Pts. 1-4, 1922.*

OBERLIN. Oberlin College—Wilson Ornithological Club, Laboratory, *Bulletin, Nos. 23-25, 1922.*

PHILADELPHIA. Academy of Natural Sciences,
(i) *Proceedings, Vol. 73, Pts. 1-3, 1921.*
(ii) *Annual Report, 1920.*

PITTSBURGH. Carnegie Museum,
(i) *Annual Report, 1921.*
(ii) *Memoirs, Vol. 8, Nos. 1-3, 1921.*

ST. LOUIS. Missouri Botanical Garden, *Annals, Vol. 7, No. 4, 1920, and Index, Vol. 8, Nos. 1-2, 1921.*

WASHINGTON. Academy of Sciences, *Proceedings, Vols. 3-13, 1901-11.*

WASHINGTON. Smithsonian Institution, U. S. National Museum,
- (i) *Herbarium Contributions. Vol. 20, Pts. 2, 10, 12, 1921-22, Vol. 22, Pt. 6, 1922, Vol. 24, Pts. 1, 2, and 4, 1922.*
- (ii) *Proceedings. Vols. 57-58, 1921, Vol. 59, 1922.*
- (iii) *Bulletins, 82, 100, 113, 114, 1921, 117, 119, 1922.*
- (iv) *Report on the Progress and Condition of the U. S. National Museum, 1921*
- (v) *Annual Report of the Board of Regents of the Smithsonian Institution, 1919.*

WASHINGTON. United States, Department of Agriculture, *Journal of Agricultural Research, Vols. 19, 21, Vol. 22, Pts. 4-9, 1921.*

HAWAIIAN ISLANDS. (HONOLULU). Bernice Pauahii Bishop Museum,
- (i) *Occasional Papers. Vol. 7, 1921, Nos. 12-14, Vol. 8, 1922, Nos. 2-5.*
- (ii) *Memoirs, Vol. 8, Nos. 3-4, 1922.*

ASIA.

Ceylon.

ANURADHAPURA. Archaeological Survey of Ceylon. *Annual Report, 1920-21.*

COLOMBO. Ceylon Branch of the Royal Asiatic Society.

COLOMBO. Colombo Museum,
- (i) *"The Snakes of Ceylon," by F. Wall, 1921.*
- (ii) *"Spoila Zeylanica," Index, Vol. 11, 1921, Vol. 12, Pt. 45. 1922.*

India.

BOMBAY. Bombay Branch of the Royal Asiatic Society, *Journal, No. 73, 1920-21.*

BOMBAY. Bombay Natural History Society, *Journal, Vol. 27, No. 5, Vol. 28, Nos. 1-3, 1921-22.*

CALCUTTA. Asiatic Society of Bengal,
- (i) *Journal and Proceedings, Vols. 3-15, 1907-1920, and Vol. 17, Nos. 2-3, 1921.*
- (ii) *Memoirs, Vols. 1-7, 1905-1922.*

CALCUTTA. Indian Museum,
- (i) *Memoirs, Vol. 5, Nos. 9-10, 1922.*
- (ii) *Records, Vol. 21, Pt. 1, Vol. 22, Pts. 2-5, 1921, Vol. 8, Pt. 13, Vol. 23, Pt. 1, Vol. 24, Pts. 1-3, 1922.*

CALCUTTA. University of Calcutta, *Journal of the Department of Letters, Vol. 8. 1922.*

LAHORE. Panjab Historical Society, *Journal, Vol. 8, No. 2, 1921.*

PUSA. Agricultural Research Institute, *Report of the Fourth Entomological Meeting. 1921.*

SIMLA. Archaeological Survey of India,
- (i) *Memoirs, Nos. 6, 10, 11, 1922.*
- (ii) *Reports of Northern, Eastern, Western, and Central Circles, 1920-21, and the Report of the Director General of Archaeology, in India, 1920-21.*
- (iii) *Catalogue of the Museum of Archaeology, Sanchi, Bhopal.*
- (iv) *Epigraphica Indica, Vol. 16, Pts. 1-2, 1921, Vol. 16, Pt. 5, 1922.*

Burma.

RANGOON. Archaeological Survey of Burma, *Annual Report, 1922.*

RANGOON. Burmah Research Society, *Journal, Vol. 11, Pts. 1-3, 1921, Vol. 12, Pt. 1 1922. Vol. 12, Pt. 1, 1922.*

Malaya.

BORNEO, (SARAWAK). Sarawak Museum.

MALAY PENINSULA (KUALA LUMPUR). Department of Agriculture, F. M. S.,
- (i) *Agricultural Bulletin, Vol. 9, Pts. 2, 3, 4, 1921.*
- (ii) *Malayan Agricultural Journal, Vol. 10, Pts. 1-6, 1922.*

MALAY PENINSULA (KUALA LUMPUR). F. M. S. Museums, *Journal, Vol. 10, Dec. 1919—Dec. 1922.*

SINGAPORE. Botanic Gardens.

SINGAPORE. Raffles Museum and Library,
- (i) *Annual Report, 1921.*
- (ii) *Guide to the Mammals of Malaysia, Pt. 1, Malaysian Ungulates, 1922.*

Dutch East Indies.

JAVA (BATAVIA). Bataviaasch Genootschap van Kunsten en Wetenschappen,
- (i) *Notulen van de Algemeene en Directievergaderingen, Deel, 59, 1921.*
- (ii) *Tijdschrift voor Indische Taal-, Land- en Volkenkunde, Deel, 60, Pts. 5-6, Deel, 61, Pts. 2-3.*

(iii) *Oudheidkundig Verslag, Derde Kwartaal, 1921, Vierde Kwartaal, 1922.*

(iv) *Verhandelingen van het Bataviaasch Genootschap van Kunsten en Wetenschappen, Deel, 63, Pts. 2-3, 1921.*

(v) *Naturukundig Tijdschrift voor Nederlandsch-Indie Deel, 82 tweede aflevering, 1922.*

JAVA (BATAVIA). Commissie voor de Volkslectuur.

JAVA (BATAVIA). *Het Algemeen Proefstation der A. V. R. O. S., Mededeelingen, Rubberserie, Pt. 36, 1921.*

JAVA (BATAVIA). Topografische Dienst, *Jaarverslag, 1920.*

JAVA (BUITENZORG). Departement van Landbouw, Nijverheid en Handel in Nederlandsch Indie.

JAVA (BUITENZORG). Jardin Botanique de Buitenzorg, *Bulletin, Ser. 3, Vol. 4, Pt. 1, Vol, 5, Pt. 1, 1922.*

JAVA (BUITENZORG). Zoologisch Museum en Laboratorium. *Treubia, Vol. 2, livr. 1, 1921.*

Siam.

BANGKOK. Natural History Society of Siam, *Journal, Vol. 4, Pt. 4, 1922.*

BANGKOK. Siam Society.

BANGKOK. Vajiranana National Library, 111 Siamese Publications.

Indo-China.

HANOI. L'Ecole Francaise de l'Extreme Orient, *Bulletin, Tome 20, Pt. 4, Tome 21, Pt. 1, 1920.*

SAIGON. La Société des Etudes Indo-Chinoises.

Philippine Islands.

MANILA. Bureau of Science,

(i) *Philippine Journal of Science, Vol. 19, Pts. 4, 5, 6, 1921, Vol. 20, Vol. 21, Pts. 1-5, 1922.*

(ii) *Annual Report, 1922.*

(iii) *Mineral Resources of the Philippine Islands, 1919-20.*

China.

SHANGHAI. North China Branch of the Royal Asiatic Society. *Journal, Vol. 53, 1922.*

Japan.

TOKYO. Asiatic Society of Japan, *Transactions, Vols. 28, 32, 39, 47, 48, and 24 parts of volumes.*

Australia.

ADELAIDE. Royal Society of South Australia.

SYDNEY. Royal Society of New South Wales.

EUROPE.

Belgium.

BRUXELLES. Société Belge d'Études Coloniales.

Finland.

HELSINGFORS. Finska *Vetenskaps-Societeten,*
(i) *Bidrag till Kannedom, H. 80, Pt. 3, 1921.*
(ii) *Ofversigt, 62c, 63c, 64, a, b, c.*
(iii) *Acta Societatis Scientiarum Fennicae, Tome 49, Pts. 3-4, Tome 50, Pt. 3.*

France.

HAVRE. Société de Géographie Commerciale du Havre, *Bulletin 38, 1921.*

MARSEILLES. Société de Géographie et d'Études Coloniales.

PARIS. Commission Archéologique de l'Indo-Chine.

PARIS. L'École des Langues Orientales.

PARIS. Société Asiatique de Paris, *Journal Asiatique, 11 Serie, Tomes 4-8, 11, 18 and 13 parts.*

PARIS. Société de Géographie, "*La Géographie.*" *Tome 36, Pts. 4-5, 1921, Tome 37, Tome 38, Pts. 1-3, 1922.*

PARIS. Société de Géographie Commerciale de Paris, "*Revue Economique Francaise,*" *Tome 43, Pt. 6, 1921, Tome 44, Pts. 1, 2, 4, 1922.*

PARIS. Société de l'Histoire des Colonies Francaises.

PARIS. Société de Linguistique de Paris,
(i) *Memoirs, Tome 22, fasc 5-6, 1922.*
(ii) *Bulletin, Tome 22, fasc 2, Tome 23, fasc 70, 71.*

Germany.

BERLIN. Deutsches Institut d'Entomologie, *Entomologische Mitteilungen, Bd. 1-10, 1912-21, Bd. 11, Pts. 1-5, 1921-22.*

Great Britain.

LONDON. British Museum (Natural History).

LONDON. Royal Anthropological Institute, *Journal, Vols. 51-52, 1921-22.*

LONDON. Royal Asiatic Society of Great Britain and Ireland, *Journal 1922.*

LONDON. Royal Botanic Gardens, Kew, *Bulletin, 1921.*

LONDON. Royal Colonial Institute, "*United Empire,*" *Vol. 13, Nos. 1-10, 1921-22.*

LONDON. School of Oriental Studies, London Institution, *Bulletin, Vol. 2, Pts. 2-3, 1922.*

LONDON. Zoological Society of London,

(i) *Proceedings, Pt. 4, 1921, Pts. 1-3, 1922, and Index.*

(ii) *A List of Fellows, Members and Medallists, 1922.*

Holland.

AMSTERDAM. Koloniaal Instituut.

AMSTERDAM. Koninklijk Nederlandsch Aardrijkskundig Genootschap, *Tijdschrift. Deel 39, Pts. 1-6, 1922.*

HAGUE. Koninklijk Instituut voor de Taal-, Land, en Volkenkunde van Nederlandsch Indië, *Bijdragen, Deel 77, Pts. 3-4, 1921, and Index. Deel 78, Pts. 1-3, 1922.*

LEIDEN. Ethnographisches Reichsmuseum, *Verslag van den Directeur 1920 and 1921.*

LEIDEN. Universiteits Bibliotheek.

Sweden.

STOCKHOLM. K. Svenska Vetenskapsakademien,

(i) *Arkiv for Zoologie, Band 14, Pts. 3-4, 1921, Band 15, Pt. 1, 1922.*

(ii) *Arkiv for Botanik, Band 17, 1922, Band 18, Pt. 1, 1922.*

UPSALA. Royal University Library, *Zoologiska Bidrag, Suppl.-Bd. 1, 1920, Bd. 7, 1921.*

Switzerland.

ZURICH. Naturforschende Gesellschaft, *Vierteljahrschrift, Bd. 66, Pts. 3-4, 1921, Bd. 67, Pts. 1-2, 1922.*

Donations.

AMERICA (NORTH).

Canada.

OTTAWA. Canadian Department of Mines.

(i) *Bulletin, Nos. 33, 34, 36.*
(ii) *Memoirs, 125-128, 131.*
(iii) *Summary Report, 1920, Pt. D, 1921, Pts.* A. C. D.
(iv) *Annual Report, 1921.*
(v) *Report of the Canadian Arctic Expedition, 1913-18, Vol. 12, 1922.*
(vi) *Biological Series, Nos. 4, 8.*

HALIFAX. Nova Scotia Institute of Science. *Proceedings and Transactions, Vol. 15, Pt. 1, 1921.*

United States of America.

BOSTON. Museum of Fine Arts, *Bulletin, Nos. 118, 120, 1922.*

WASHINGTON. Library of Congress, *Annual Report, 1921.*

ITHACA, (NEW YORK). Cornell University Agricultural Experiment Station,

(i) *Memoirs, 38-39, 1920-21.*
(ii) *Bulletin, 404, 1921.*

HAWAIIAN ISLANDS (HONOLULU). Pan Pacific Union, *Bulletin, 33-36, 1922.*

AMERICA (South).

Mexico.

MEXICO. Institute Geologico di Mexico, *Boletin, Nos. 37, 1920.*

ASIA.

India.

MADRAS. Madras Government Museum, *The Coins of Haidar Ali and Tipu Sultan, by* J. R. Henderson.

CALCUTTA. Indian Museum, *Records, Vol. 24, Pt. 3, The Indian Planorbidae, by* N. Annandale.

CALCUTTA. *Report on the diseases of Silk Worms in India, by* A. Pringle Jameson, *D. Sc.*

NOVA GOA. Comissao Arquelogia da India, *"O Oriente Portugues," Vol. 17, Nos. 5-6, 1920.*

Malaya.

KUALA LUMPUR. Committee for Malay Studies, *Papers on Malay Subjects, 2nd Ser. Perak Malay, by* C. C. Brown, *1921.*

SINGAPORE. Natural History Society, *the Singapore Naturalist. Vol. 1, No. 1, 1922.*

SINGAPORE. *Tours in the State of Pahang, by* J. W. Boyd Walker, *1922.*

Dutch East Indies.

JAVA (BATAVIA). Mijnwezen in Nederlandsch Oost-Indie,
(i) *Jaarboek, 1919.*
(ii) *Atlas Behoorende bij het Jaarbock 1918.*

JAVA (BATAVIA). Pratelan Kawontenaning Bokoe-Bokoe, Javaansche Bibliographie, *Dijlid 1-2, 1920, door* Dr. D. A. Riukes.

JAVA (WELTVREDEN). Balai Poestaka,
(i) *Sri Poestaka, tahoen, 1-12, 1922.*
(ii) *Seventeen publ. translated into Javanese.*

JAVA (WELTVREDEN). Koninklijke Natuurkundige Vereeniuging in Nedrlandsch Indie, *Natuurkundig Tijdschrift Deel 81, 1921 and Index Deel 82, Pt. 1, 1922.*

Japan.

TOKYO. Ornithological Society of Japan, *Bulletin, Vol. 3, Nos. 11-13, 1921-22.*

TOKYO. Kaiserliche Universität zu Tokyo, *Deutsche Gesellschaft fur Natur- und Volkenkunde Ostasiens, Bd. 17, 1922, Bd. 15, Heft D., 1917.*

EUROPE.

Great Britain.

LONDON. Report on the Victoria and Albert Museum, 1918.

Germany.

GIELEEN. Bericht der Oberhessischen Gesellschaft fur Natur- und Heilkunde zu Giessen, *Band 8, 1920-22.*

Holland.

LEIDEN. Kleinere Schriften des ibn Al-Arabi, *von* H. S. Nyberg, 1919.

LEIDEN. De Pandji-Roman *by* W. H. Rassers.

LEIDEN. De Zeeën van Nederlandsch Oost-Indie Uitgegeven door het Koninklijk Nederlandsch Aardrijkskundig Genootschap, 1922.

LEIDEN Encyclopaedie van Nederlandsche-Indie, *Afl. 1, Mei 1922.*

Italy.

ROME. Reale Societa Geografica Italiana, *Bolletino. Serie 5, Vol. 10, Nos. 10-12, 1921, Vol. 11, Nos. 1-6, 1922.*

ROME. Monthly Bulletin of Agricultural Intelligence and Plant Diseases, *Vol. 12, No. 10, 1921.*

Sweden.

STOCKHOLM. *Die Person Muhammeds Vorgelegt von Tor Andrae, 1917.*

STOCKHOLM. *Etudes sur la Phonologie Chinoise, par Bernhard Karlgren, 1915.*

UPSALA. *Die Supernasage von Furl Charpentier, 1920.*

UPSALA. *Traditions de Tsazzega et Hazzega Annales et Documents, par Johannes Kolmodin 1914.*

Switzerland.

LUZERNE. Brandstetter (R,) Wir Menschen der Indonesischen, *Erde 2, 1922.*

ANNUAL REPORT

of the

Malayan Branch, Royal Asiatic Society

For 1922.

Membership

The membership of the Society at the close of the year stands at 543, as compared with a total of 463 at the end of 1921. There are 15 Honorary Members, 4 Corresponding Members, and 524 Ordinary Members.

During the year 86 new Members were elected by the Council. This shows a decrease over 1921, when the record number of 153 new Members joined the Society. The total however is the second highest in the history of the Society and compares very favourably with a pre-war average of 22 new Members per annum. Rather more than half the present membership roll have joined the Society since January 1920.

The names of the new Members elected during the year are:—

Honorary Member.

H. H. the Sultan of Johore, G.C.M.G., K.B.E.

Ordinary Members.

Mr. C. S. Alexander
Inchi Abu Bakar bin Hamad
Mr. D. M. Barry
Mr. L. A. C. Biggs
Mr. D. A. Bishop
Mr. C. W. H. Cochrane
Mr. T. B. Cocker
Mr. H. T. Clarkson
Capt. T. P. Coe, M.C.
Mr. A. B. Cross
Mr. H. G. Dalton
Mr. A. Denny
Capt. F. Drury, O.B.E.
Mr. W. S. Ebden
Mr. H. C. Eckhardt
Mr. A. T. Edgar
Mr. B. W. Ellis
Mr. L. L. F. Fearon
Mr. H. J. Fraser
Mr. J. C. Fuller
Mr. E. W. F. Gilman
Mr. G. S. Glass
Mr. R. N. Goodwin
Mr. T. I. M. Gordon
Mr. W. H. W. Gubbins
Mr. A. C. Hall
Hon. Mr. D. H. Hampshire
Mr. P. H. V. Hanitsch
Mr. C. W. Harrison
Mr. G. Harrower, M.B.
Mr. P. K. Hazlitt
Mr. G. S. Hellings, M.C.S.
Mr. W. C. Hill
Mr. C. T. Hinde
Mr. R. E. Holttum
Capt. J. H. Howlett, M.C., B.A.
Capt. J. Huggins, M.C.
Capt. H. North Hunt
Capt. R. Irvine, M.C.
Mr. E. Jago
Mr. W. P. W. Ker
Mr. J. A. Lacomblé

Mr. R. F. V. Leech
Mr. J. Leggate
Mr. E. G. Leyne
Mr. V. A. Lowinger
Mr. L. R. Mackness
Mr. G. E. Mann, M.C., B.A.
Mr. J. T. Mansfield
Tengku Mansur bin Sultan Abdul Hamid Halimshah
Hon. Mr. F. A. S. McClelland
Mr. P. W. May
Dr. E. Mjoberg
Tengku Mohamad bin Sultan Abdul Hamid Halimshah
Mohammad Ismail Merican bin Vafoo Merican Noordin
Capt. Haji Mohamad Said
Mr. G. S. Morse
Mr. G. H. Nash
Lt. B. M. O'Connell, R.N.
Mr. W. B. O'Sullivan, B.A.
Mr. G. N. Owen
Mr. F. W. Page-Turner
Mr. J. C. Pasqual
Hon. Mr. W. Peel
Dato Sadia Raja Abdullah
Mr. J. A. Russell
Mr. S. Sehested
Mr. G. E. Shaw
Mr. M. B. Shelley
Mr. A. J. Shelley-Thompson
Mr. A. S. Small
Dr. A. G. H. Smart
Mr. D. G. Stead
Hon. Mr. O. F. Stonor
Mr. R. Summerhayes, B.Sc.
Mr. S. L. Thompson
Mr. Lindsay Vears
Mr. E. G. Walker
Tengku Wan Yahya bin Tuan Mohamad Taib
Mr. D. J. Ward
Mr. E. B. Williams
Mr. F. L. Williams, M.C.S.
Mr. L. C. H. Woodgate
Sir L. M. Woodward
Mr. H. W. Woolley
Mr. N. A. Worley

The Council record with deep regret the death during the year of Bishop Hose, one of the founders of the Society and for many years its President. For 30 years he took an active part in the work of the Society and after his retirement in 1908 he maintained his interest.

The "Father of the Society" is now the Ven. Archdeacon Perham, who was elected in May, 1878.

The Society also lost by deaths Mr. L. Lewton Brain and Mr. A. J. Weller, the former for several years Director of Agriculture, S.S. and F.M.S.

Four resigned their membership during the year.

Council

Messrs. C. L. Collenette and B. Nunn left the Council during the year; Mr. G. L. Ham and Dr. G. H. Macalister were co-opted in their places. Mr. C. Bazell, Hon. Treasurer, on his departure to Kuala Kangsar, handed over his duties to Mr. A. G. Bratton. As Hon. Librarian from 1916-1920 and Hon. Treasurer from 1921 Mr. Bazell has afforded much valuable assistance to the Society.

General Meeting

The Annual General Meeting was held on the 10th February, followed by a dinner at the Singapore Club at which H. E. Sir Laurence Guillemard, Patron of the Society, was present, together with 35 Members and their friends.

The change in the Society's name was approved by the meeting with effect from 1st January 1923.

An alteration was passed in Rule 8. whereby provision is now made for the election of two Vice-Presidents for the Unfederated States, in addition to Vice-Presidents for the Straits Settlements and Federated Malay States.

Journals

Two Journals were issued during the year: No. 85 appeared in March and No. 86 in November. Together they covered 440 pages. There was a good response to the appeal for papers from those who had not yet contributed to the Journal. Twenty-one contributed articles or short notes against thirteen in 1921. Exclusive of short notes, altogether 34 papers were published against 21 in 1921. Malayan folk-lore provided material for many papers, chiefly by Dr. Winstedt; important Vocabularies were contributed by T. S. Adams (Pangan) A. W. Hamilton (Penang Malay), the late N. B. Baboneau (Murut). Malay Pantuns were discussed in a novel manner by Mr. Overbeck. Five short papers and five notes dealt with Zoological subjects. Botany was represented by an important memoir on the flora of Borneo by Dr. E. D. Merrill, and by shorter papers from Mr. H. N. Ridley, Dr. F. W. Foxworthy and Mr. I. H. Burkill. Mr. E. S. Willbourn contributed an important paper on the Geology of the Malay Peninsula—a subject which is rarely treated in our Journal. The Psychology of "Latah" by a former President, Dr. D. J. Galloway, a paper by Sir John Bucknill on Coins, Notes and Tokens issued in Malaya during and after the Great War, and accounts of jungle journeys by F. W. Douglas and A. W. Hamilton, maintained the variety of subjects dealt with in the Journal.

The authorship asterisk is now placed against 53 names in the membership list. It is still felt that a great many Members resident in Malaya must have unique opportunities for observation and research, and that in consequence they should be in a position to communicate papers or notes of considerable interest and value. Short articles in particular will always be welcomed by the Society's Council.

Finances

The Hon. Treasurer's Statement of accounts shows credit balances carried forward to the total of $2,378.84 against $1,632.96 at the end of 1921.

Our investment of $2,200 in S. S. War Loan was added to the "Life Members' Reserve" which now stands at $4,700 nominal value (= $4,762 actual value as on 31st December 1922). 25 Members compounded for Life membership, making the total of Life Members now 76. To these must be added 19 Honorary and Corresponding Members who pay no subscriptions.

Sales of Journals showed an increase of $675.83 over 1921. Sales of maps a decrease of $345.60.

Bye-Law

Under Rule 10 (h) the Council passed the following bye-law:—

"Under Rule 6 Members who have failed to pay their subscription by the 30th June are suspended from membership until their subscriptions are paid. The issue of Journals published during that period of suspension cannot be guaranteed to Members who have been so suspended."

Library

The Society's Exchange list now numbers 81 Institutions and Societies. From these and other sources 352 publications were received during the year, an increase of 104 over the number received in 1921. $150.50 was spent on book-binding during the year against $73 in 1921.

As a result of the steady increase in the number of publications sent to the Society during the past few years the shelf room in the Library has been taxed very greatly. To prevent overcrowding, a number of books were withdrawn. A re-arrangement of the book cases and furniture also took place and sufficient shelf room has been secured to last for a number of years.

J. C. MOULTON,
Hon. Secretary.

Singapore,
6th January, 1923

Receipts and Payments Account for the year ended 31st December, 1922,

RECEIPTS.		
To Cash		
Mercantile Bank of India, Ltd.		
Current account	$1,616.63	
Petty Cash in hand	16.33	
		$1,632.96
„ Subscriptions		
Annual 1920-21	250.00	
„ 1922	1,650.46	
„ 1923-26	490.00	
Life Members	1,296.31	
		3.686.77
„ Interest		
Investments	245.00	
Bank	57.59	
		302.59
„ Sales		
Journals	1,185.53	
Maps	93.60	
		1,279.13
„ Sundries		.93
„ Annual Dinner		350.00
		$7,252.38

PAYMENTS.		
By Printing		
Journal No. 85	$2,233.26	
Journal No. 86	1,274.25	
Circulars	31.50	
Photographs No. 85	89.80	
Photographs No. 86	39.03	
		$3,647.84
„ Stationery	77.36	
Salaries	288.00	
Postage	259.16	
		624.52
Book-binding	150.50	
„ Printing circulars etc.	54.00	
„ Sundries	45.05	
		249.55
„ Annual Dinner		306.46
Cash		
Mercantile Bank of India, Ltd.		
Current Account	2,378.84	
Petty Cash in hand	25.17	
		2,404.01
		$7,252.38

Examined and found correct

SEE TEONG WAH,

28th January 1923. *Hon. Auditor.*

A. G. BRATTON,

Hon. Treasurer.

On a Collection of Reptiles from Sarawak.

BY DR. EMMETT R. DUNN.

The following notes are based upon a collection of Reptiles made in the region of the upper waters of the Baram River, north-western Sarawak, Borneo, by J. C. Moulton and Harrison W. Smith, September to November 1920.

The collection contains three new snakes and a few other rarities, as noted below. The remainder represent common species and can be dismissed in a few words.

Lacertilia.

The collection of lizards comprises 57 specimens representing 13 species—or one-seventh of the total number of species recorded from Borneo.

The Geckos are represented by two species: the Common Eastern house Gecko, *G. monarchus* (D. and B.), and the very rare *Gehyra beebei* described by Annandale in 1913 from a single female captured by Mr. Beebe's collector in 1910 at Kapit, up the Rejang River, in Sarawak.

On this occasion three were taken at Long[1] Akar (two in the Government Fort) and one further up the Baram River at Long Sap. Annandale notes that it is distinguished from other Malaysian species "by having all but the terminal subdigital lamellae completely divided, as well as by other characters."

The length of head and body (measured from the spirit specimens) is 43—52 mm., tail 50 mm. The ♂ has 28—31 femoral pores, 6 rows enlarged scales on the tail.

The AGAMIDAE are represented by four species of *Draco* (*D. cornutus* Gunther, *D. cristatellus* Gunther, *D. maximus* Boulenger and *D. formosus* Boulenger), two species of *Gonyocephalus* (*G. liogaster* (Gunther) and *G. grandis* (Gray)), and the very common *Calotes cristatellus* (Kuhl).

Two of these are rarities: *Draco cristatellus* only known from Borneo—represented in this collection by one from Baram—and *D. formosus* which is chiefly found in the highlands of the Malay Peninsula, Borneo and Sumatra. This collection contains two from Baram.

The big family of Skinks, of which there are many species in Borneo, are represented by the four common species *Mabuia multifasciata* (Kuhl), *Lygosoma* (*Hinulia*) *variegatum* Peters, *Lygosoma* (*Kineuxia*) *vittatum* (Edeling) and *Tropidophorus brookei* (Gray).

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[1] "Long" means "Mouth of a river": thus Long Akar = mouth of the River Akar, a branch of the great Baram river. J.C.M.

Ophidia.

The snakes proved of more interest. The collection contains 53 specimens representing 24 species, of which 3 are new. They all belong to the Family COLUBRIDAE, 23 species to the harmless subfamilies *Colubrinae* (18) and *Dipsadomorphinae* (5). The remaining species is represented by one specimen, the only poisonous snake of the whole collection viz. *Doliophis bivirgatus*. No vipers or water snakes were collected.

[A fine Hamadrayad measuring 9 ft. 2 ins.—not sent to Dr. Dunn for identification—was taken at Lio Matu. The capture of only 2 poisonous snakes out of a total of 54 is interesting evidence of the general harmlessness of snakes—at any rate in Borneo.] J. C. M.

The following common or well-known Colubrine snakes call for no comment: *Sibyonophis*[1] *geminatus* (Boie), *Dendrophis pictus* (Gmelin), *Dendrelaphis caudolineatus* (Gray), *Natrix conspicillata* (Gunther), *Natrix chrysarga* (Schlegel), *Natrix maculata* (Edeling), *Xenelaphis hexagonotus* (Cantor), *Elaphe flavolineata*[2] (Schlegel), *Gonyosoma oxycephalum* (Boie), *Holarchus octolineatus* (Schneider), *Holarchus purpurascens* (Schlegel), *Gongylosoma baliodeirus* (Boie), and *Calamaria borneensis* Bleeker.

Two rare Colubrine species were taken:

(i) *Natrix flavifrons* (Boulenger), a rare mountain species hitherto only known from Mount Kinabalu in British North Borneo and Mt. Penrissen in Sarawak, and represented in this collection by one from Lio Matu, a mountainous region in the upper waters of the Baram River, and another from Mt. Murud, alt. 2,000 ft.

(ii) *Calamaria lowi* Boulenger, which appears to be confined to this part of Sarawak. The collection contains 7 from Long Mujan and one from Long Sap.

[When alive the lateral spots in the anterior portion are bright yellow, and there are one or two yellow spots on the tail. The general colouring is brownish-purple above, bright yellow beneath. Six of these, 14 *Calamaria borneensis* and the two new *Calamaria* species—*C. smithi* and *C. moultoni*—were caught at Long Mujan on October 4th and 5th on flooded trees or swimming near the river bank where a heavy fresh had flooded the surrounding country.] J. C. M.

The three following Colubrine snakes appear to be new. In each case they are only represented by single specimens which, at the request of the Director of the Raffles Museum, Singapore, have been sent to the British Museum.

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[1] **The following generic names are usually employed by European writers in place of those given in this paper:- *Polyodontophis* for *Sibyonophis*, *Tropidonotus* for *Natrix*, *Coluber* for *Elaphe* and *Gonyosoma*, *Simotes* for *Holarchus*, and *Ablabes* for *Gongylosoma*. I mention these at the request of Major Moulton for the convenience of European readers of this Journal. E.R.D.**

[2] **Long known as *E. melanurus*.**

Natrix frenata sp. n.

Field No. 119, from Mt. Murud, 2,000 ft.

Last three maxillary teeth abruptly enlarged, eye large. Scales 17, all keeled, ventrals 166, anal divided, subcaudals 112, rostral visible from above, internasals longer than prefrontals, broadly truncate in front, frontal longer than its distance from tip of snout, shorter than the parietals, once and three-fourths as long as broad, loreal deeper than long, oculars 1-3, temporals 2-3, eight upper labials, third to fifth entering eye. Brown above, small, square black spots alternating on each side of middorsal line, below these on each side a series of narrow upright white bars with broader dark borders, belly checkered black and white, a white line from lower hind corner of eye traverses upper labials and runs backwards and upwards to meet its fellow on back of neck. This line is bordered with black above and below. Remainder of upper labials and lower labials white with black sutures. Total length 260 mm., tail 75 mm.

This snake seems to be close to *N. sarawacensis* (Günther) and to *Natrix maculatus* (Edeling). The colouration is most like *N. maculatus torquatus* (Moquard) from Mt. Kinabalu. But the present form has more ventrals and subcaudals than *sarawacensis*; more ventrals, fewer scale rows and one less labial than *maculatus*; and the colouration is not exactly that of any of the other forms.

Calamaria moultoni sp. n.

Field No. 40, from Long Mujan.

Diameter of the eye longer than its distance from the mouth, rostral broader than deep, frontal longer than broad, shorter than the parietals, not twice as wide as the greatest width of the supraocular, one pre- and one postocular, six upper labials, third and fourth entering eye, mental in contact with the anterior chin shields. Ventrals 122, anal entire subcaudals 23. Tail ending in a point. Brown above, each scale with white marbling. Striped as follows, a dark stripe on ends of ventrals and part of scale row 1, a white stripe on rest of scale row 1, anteriorly a dark stripe on adjacent halves of scale rows second, third, fourth and fifth, a dark stripe on the median row and the adjacent halves of the two rows at each side. These stripes disappear on posterior two-thirds of body. Anterior ventrals with a median black spot, middle ventrals with black anterior border, posterior ventrals with median black spot, a black median line under the tail, most of upper labials white, chin and throat white. Total length 270 mm., tail 25 mm.

Apparently allied to *C. indragirica* Schenkel, from Sumatra. But *C. moultoni* has some twenty-three more ventrals and the colouration, while on the same general plan, differs in detail.

Calamaria smithi sp. n.

Field No. 74, from Long Mujan.

Diameter of the eye a little longer than its distance from the mouth, rostral about as broad as deep, frontal longer than broad, more than twice as broad as supraocular, much shorter than parietals, one pre- and one postocular, five upper labials, third and fourth entering eye, first lower labial in contact with its fellow behind the mental.

Ventrals 142, anal entire, subcaudals 21. Tail ending in a blunt point. Yellowish brown, many scales with a darker border, lower half of scale row 1 white, middle of scale row 2 white, forming a light lateral stripe. A light line starting at nostril traverses prefrontal, supraocular, postocular and parietal, lower two-thirds of upper labials white, belly white, a dark line on subcaudals. A dark half collar on neck; a dark half band at anus, one in middle of tail, and one near tip. Total length 103 mm., tail 20 mm.

Very close to *C. brookei* Boulenger, also from Borneo, but differing in not having the five black stripes attributed to that species and in having the portion of the rostral visible from above one-fourth instead of one half its distance from the frontal.

The Dipsadomorphine snakes are *Boiga*[1] *dendrophila* (Boie), *Boiga cynodon* (Boie), *Passerita fasciolata* (Fischer), *Dryophiops rubescens* (Gray) and *Chrysopelea peleas* (Linn.)—for the most part common and well-known Malaysian species.

D. fasciolatus is rather a rarity, confined to Sumatra, Borneo and the Natunas. One was collected at Long Selaan in the upper Baram River.

D. rubescens, represented by one from Long Kalimau, is another uncommon species, which is however known from Siam, the Malay Peninsula, Sumatra and Java.

The others call for no comment.

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[1] European writers have long used *Dipsadomorphus* for *Boiga*, *Dryophis* for *Passerita* and *C. chrysochlora* for *C. pelias*.

Early Days In Penang.

BY THE REVD. KEPPEL GARNIER.

On the morning of July 15th 1786 Pulo Pinang—Pulo Ka Satu—lay sleeping in the sun, as quiet and untrodden by human feet as any other of the many jungle-covered islands in these Eastern seas. At midday three ships dropped anchor off Pulo Tikus, boats were lowered and soundings taken. The same thing happened the following day, and no doubt the fifty odd original inhabitants came from their Kampong under the hill, by narrow jungle path down to the sea shore to find out what these strange ships were doing. On July 17th Lieutenant Gray and a party of marines were landed at "Point Penagger"; their duty was to prepare for the arrival of Captain Francis Light and a few other Europeans who, on the morning of July 18th set foot on the sandy scrub-covered beach where today stands Fort Cornwallis. The intended occupation of the Island by the British was well known by those who dwelt on the Kedah coast, and soon after Captain Light had landed, the Datu of "Qualla Moodoo" arrived and obtained permission to build himself a house. He was shortly followed by the Captain China and some Indian Christians who had come from Kedah in a prahu. Perhaps, in the same boat came the French Padre, who, Light tells us, landed among the first arrivals and planted his Cross on the soil of Penang. With him, or soon afterwards, came a hundred Christians, also from the coast of Kedah. This constant coming and going was too much for the Malays—they now approached Light and through their Headman, Nakodah Kechil, asked what it all meant. Light seems to have been in entire sympathy with Malays. He frequently dressed as one himself and they were always his devoted friends. On this occasion, these Penang Malays departed well satisfied with a present which Light had ready for them. For the rest of the month everyone was busy, in clearing the ground, building a Fort, erecting a small Bazar, and generally getting things shipshape.

On August 7th the "*Eliza*" returned from "Queda" with provisions. Several more Christian families took the opportunity to travel by her, and on August 10th two H. C. ships, the "*Vansittart*" and the "*Valentine*" arrived, and so Light decided to invite their Commander to be present on the following day when he hoisted the Flag and took possession of the Island in the name of His Britannic Majesty and the Honourable East India Company. At noon, therefore, on August 11th, Captains Light, Glass, Wall and Lewin, besides "Local Servants of Government" carried out the simple ceremony at a spot where now is the Esplanade, and Prince of Wales Island came into being, and was admitted into the great family of the British Empire. Although presumably proud of its new name, it has never been able to persuade the world in general to adopt it and, except officially, Pulo Pinang it remains, modified into "Penang" by the clumsy British tongue.

From this time on, things began to move rapidly. We are not told much in detail, but we learn that ships called at the new Settlement in quick succession and that every Captain was desirous of obtaining possession of land and "employed people everyday to clear the woods." Among the first to arrive was Captain James Scott, a Navigating Merchant belonging to Calcutta and a friend of Captain Light. He was also a first cousin once removed of Sir Walter Scott. Very soon one hears that he has cleared the land at Glugor—Assam Glugor is a tree with orange acid fruits used in flavouring curries—and Glugor we may say is the oldest estate on the island, and is still today the most important. One Bacon went further inland and cleared Ayer Itam. Before long a Chinese gentlemen built his flour mills there. They were burnt to the ground early in the nineteenth century, but the foundations of Amee's Mill can still be seen. A year after the inauguration of the Settlement there were 60 Chinese families who kept the shops in the Bazar, "already pretty extensive," and a few Malabars. There were also a certain number of Malays, who come and go between the island and the mainland. Captain Glass who had now been appointed to the command of the troops, was not fond of these Malays and complained that they taught his men to gamble. He tried to find more work for his soldiers so as to keep them from these naughty natives.

In 1792 Light wrote, with pardonable pride, that the Island which six years ago had been one entire wood, now had a population of 10,000; this total he divided up into 7,000 "inhabitants"; Company's servants with their followers 1,000; Malays 1,500; and strangers who come and go in ships and "prows" anything from 1,500 to 2,000. Two years later, on October 21st, Light died, but he had lived long enough to feel the gratification of success and something of anxiety in regard to the future of his Settlement.

Light himself was a Suffolk man, but he seems to have depended on Scotsmen to carry on his work. With the exception of Captain Glass, who was an Irishman, he was surrounded by men from North of the Tweed. Lieutenant Norman Macalister, who in 1807 became the second Governor of Penang, and Lieutenant Robin Duff were Members of his Council, while Edward Hay was the Secretary to Government. Another Scotsman by the way, was the first baker in Penang, for we are told that the Honourable J. Cochrane owned the first bakehouse, valued, with his godowns, at 4,000 Spanish dollars. But nothing more is known about him than that.

Light was most anxious that those who succeeded him should be in sympathy with the Malays and the Asiatic immigrants, but he evidently had fears on the subject. The sequel showed that his fears were unfounded, for the year following his death the population had again increased, and there were at that date 25,000 inhabitants, showing that the Asiatics of all races had entire confidence in the Government. Such trouble as arose was caused, not by the Government being out of sympathy with the Asiatics, but by the European merchants and planters being opposed to any Government at all—at any rate of the character provided by the E. I. Company. So unruly did they become that an attempt was made by the Superintendent, Major J. R. Macdonald, to come to some agreement with them, for which purpose he invited them to meet him, to discuss their grievances. He seems to have shown very little tact and the influential planters probably felt themselves strong enough to be able to oppose him, and were by no means conciliatory in their attitude. Major Macdonald retaliated by instituting inquiries in regard to the titles by which they held their property. We have the names of some of these merchants and the replies given in certain cases. Messrs. McIntyre, Scott, Lindsay, Hutton, Roebuck, Young, Brown, Sparran, Mackrell and Nason were the men who attended the conference. Mr. Scott,—the Captain James Scott mentioned earlier—seems to have been the outstanding personality of those early days. Major Macdonald reported of him that "of every spot which Mr. Scott's sagacity pointed out as at a future hour likely to become valuable, he has by assumption or purchase made himself a part owner." He added, "Mr. Layton is likewise an industrious and prospering farmer, as was Mr. Brown, previous to his junction with Mr. Young." Mr. Young's influence does not seem to have done much harm in the long run!

The answers made by some of these gentlemen on the subject of the titles to their properties were as follows: Mr. Lindsay said he arrived in 1788 under the protection of Mr. Light and was a partner in Mr. Scott's house, with whom Mr. Light was also associated in commercial affairs. Mr. Scott wrote that he belonged to Calcutta, "to which place I return as soon as I can settle my affairs." However he died in Penang on September 20th 1808. Mr. Nason says he arrived in the Island on September 10th 1786 and declared that he was the man who cut the first tree and raised the first plant. There was the making of a very pretty quarrel between Government and the independent planters. We can understand it better when we remember that Government Officials were themselves merchants. They began as "Writers" and after their sixth year of residence they become "Factors." From the 9th to the 11th year they were called "Junior Merchants." From and after the 12th year of arrival they were designated "Senior Merchants." But Light had from the first encouraged independent merchants to settle and take up land, and these men had become very wealthy and were owners of practically all the land in the island worth cultivating. The Superintendent regarded them as a turbulent and unruly crowd of interlopers, and a constant warfare was kept up for many years. They seemed to have shown a close resemblance to their brothers and cousins who were living similar cheery lives on the plantations in the West Indies. Young bloods they were beyond doubt, and, also beyond doubt, rather a thorn in a side of Government.

Major Macdonald died in 1799 and in 1800 a new regime began. Sir George Leith was sent out as Governor and Mr. W. E. Phillips accompanied him as Private Secretary. Mr. G. Caunter was the first assistant under Mr. Phillips and Mr. Dickens, an uncle of Charles Dickens, was appointed Judge and Magistrate.

Mr. Caunter's name is frequently met with, and he occupied many important posts from time to time, including that of Superintendent. One of the most curious is that of Acting Chaplain. As Chaplain he baptized, married and buried members of the Anglican Community in Penang: and this he did up to the time of the arrival of the first Padre, the Reverend Atwell Lake in 1805, and repeatedly, after that date, when the Chaplain was on leave. In 1801 we find him marrying Thomas Burston Peirce, Commander of H. C. S. "*Taunton Castle*," to Anna Maria Fearon, Spinster, of Prince of Wales Island; J. P. Fearon and the Governor, Sir George Leith, were the witnesses. In 1803 he married Charles Sealy and Elizabeth Palmer Mannington, daughter of Phillip Mannington, who succeeded Light as Superintendent in 1794 and who died in 1795. Elizabeth was thus the sister of Philip Mannington who was 2nd Assistant to Major Macdonald and Magistrate, who died in 1806. There was another brother, Robert, who stood as Godfather to Charles Sealy's son in 1804. In 1804 Mr. Caunter married Patrick Chiene, merchant, to Elizabeth Brymer; D. Brown was one of the witnesses.

James Scott, senior, died on September 20th, 1808, his son James having died on July 23rd. These were the founders of "James Town" which they hoped would prove a successful rival to George Town, the seat of Government, where Sir Edward Stanley, the newly appointed Recorder and Judge, was making things rather unpleasant for independent and high spirited planters. James Scott had another son William, who survived him and died at the ripe age of 83.

W. E. Phillips who came to Penang as Private Secretary to Sir George Leith was, from the day of his arrival to the day of his departure from the island, continually in the public eye. He acted as Lieut. Governor between 1800 and 1805. After 1805 he acted as Governor and in 1820 he was finally appointed Governor, which office he held until his departure in 1824. He lived for 30 years at home after his retirement. In his time St. George's Church was built and consecrated, and in his time too, and mainly owing to his endeavours, slavery was finally abolished in the Island: He also, like Mr. Caunter, was intimately associated with the social life of the Settlement. He married (and incidentally was married himself), he baptized and he buried. In 1809 he was called upon to baptize the youngest son of Quinton Dick Thompson and Marianne Raffles, his wife. The boy was christened William O'Bryen Drury, and his godparents were Rear Admiral William O'Bryen Drury, Thomas Raffles and Olivia Marianne Raffles. A month later Mr. Phillips was called upon to bury the father. Marianne the mother was married again two years later to Captain Flint in Malacca. Mr. Phillips baptized at the same time as the little Dick Thompson was brought to the font, the daughter of Thomas and Catherine Church; and Marianne Thompson and her brother Stamford Raffles and his wife Olivia stood as Godparents. The following year his services were again required in connection with the Raffles family. This time he married Leonora, a younger sister of Stamford Raffles, to Billington Loftie, surgeon, and Thomas Raffles again signed the Register. This seems to have been a popular wedding, for Mr. Clubley, Mr. John Macalister, Mr. W. Ibbetson and Mr. J. L. Phipps also signed.

Mr. Clubley married in 1817 Margaret Carnegy, the sister of James and Patrick Carnegy. He was the first owner of the "Crag" which was then known as "Clubley's Hill." He died in 1826 aged 36 years, being at the time of his death Senior Member of the Council. Mr. John Macalister was also Senior Member of Council when he died in 1824, aged 39.

Mr. Phipps was one of the "Senior Merchants" and married in 1817 Marianne Bailey. Mr. Ibbetson was afterwards Governor; he married in 1817 Harriet Georgina Hutchings Bennett, the widow of W. Bennett whom she had married in 1811. She was a sister of Mr. G. and Mr. R. Caunter. The Ibbetsons had a son, Samuel Kerr, who was at Winchester College in 1837. In 1817, which was a great year for marriages, a sister of Mrs. Ibbetson, Sarah Sparke Caunter, was married to Captain Thomas Larkins of H. C. S. "*Marquis of Campden.*" The following year another sister of James and Patrick Carnegy, Mary Alison, was married to John Anderson of H. C. Civil Service, and Messrs. Carnegy, Clubley, Phipps, Erskine, Ibbetson, etc., rolled up to make sure that almost the last bachelor of their small circle was safely tied up. But a month later, June 30th, a double wedding took place (no doubt in the newly built Church of St. George the Martyr) which must have been the social event of the year. Mr. Phillips married Janet Bannerman. At the same time and in the same place Mr. Henry Burney, a Lieutenant in the Bengal Army, also married Janet Bannerman, and the Reverend Joseph Rawlins Hutchings A. M., who performed the ceremony, did not think fit to give any explanation or specify more clearly who these ladies were. But from private sources it has been possible to clear up the difficulty. Mr. Phillips married Janet, daughter of Colonel Bannerman, the Governor, and Henry Burney married Janet, the daughter of the Rev. James Patrick Bannerman and the niece of the Governor. The Governor and his wife, Mr. A. J. Kerr, the Registrar, and Mr. James Low signed both registers. Mr. Phillips' name was added for Mr. Burney's wedding and Mr. Burney's for Mr. Phillips'.

The Phillips in the course of time had a son, Charles Palmer, and Charles Palmer Phillips had three sons, all at Winchester College, the second one, by name Charles Bannerman Phillips, was for long a well-known and much respected housemaster there and is still alive today.

Mr. Burney was a brother of Fanny Burney (Madame d'Arblay) and was the author of the famous treaty with Bangkok in 1826. Later he was British Resident at Ava from 1829 to 1838. He also had two sons at Winchester, the second of whom bore the name of Alexander d'Arblay. After the wedding, no doubt they all repaired to Suffolk to cut the cakes and make appropriate speeches.

The social life must have been very pleasant at that time in Penang. It was one big family party. One finds that many of one's preconceived ideas of life in the East in those days have to be revised. Life was not the exile that one sometimes imagined it to have been. Brothers came out together and then sent for their sisters. Stamford Raffles not only had his wife with him, but three sisters as well. The Carnegys were a party of two brothers and two sisters. The Caunters were the same.

The Bannermans were a large party including a niece of the Governor. There were also the Cousens. George Alexander married Martha, one of the sisters, while Jemima stayed on with her brother and died unmarried. And there seem to have been children in every household. John Hall, Deputy Collector of Customs, and Rosemary Ann his wife had six children in ten years. James Cousens, by the way, married a sister of John Hall. The Scotts, Browns, Carnegys, Chienes and Dickens all had growing families and there must have been more European children in Penang in 1822 than there are today. There were many nice homes with boys and girls growing up together. Then again, there was much coming and going. People went away to Calcutta, Madras, Malacca, Bencoolen and further afield to the Cape and to China on business or for health—not perhaps for pleasure! Two out of the three Members of Council appointed in 1805 were drowned. Alexander Gray went down in the "*Blenheim*" off Mauritius and his wife was with him. Colonel Norman Macalister and his wife were drowned in a typhoon off the coast of China.

In 1811 the first real globe trotter visited the Island, Mr. James Wathen. On his voyage out he had read Johnson's Oriental Voyages, and he expected much of Penang, for Johnson declared that "the island, from the salubrity of its air was justly esteemed the Montpelier of India, and from the dawn of day until the sun has emerged above the high mountains of Queda, and even for some time after this period, Penang rivals anything that has been fabled of the Elysian Fields." Wathen at the end of his two months' visit agreed with all that Johnson had said in its praise. On his arrival at Penang his first duty was to report immediately at the office of the Town Major—Major J. M. Coombs 25th M. N. I. This gentleman who was also a Magistrate, was once challenged to fight a duel by John Macalister, a fellow Magistrate. There was a considerable disturbance over the matter and Macalister was severely reprimanded by the authorities at home. Having performed this necessary duty Wathen was free to come and go and enjoy the hospitality of all the friendly folk in Penang, many of whose names have been mentioned already. He dined at Suffolk with Mr. Phillips, who at the time of his visit was Acting Governor, and was delighted with the house. "A splendid mansion" he exclaimed. The entertainment provided thoroughly met with his approval. Mr. Phillips was still a bachelor but he knew how to do things well. Ten years later when Crawford visited him and his wife, he says that Suffolk was the most beautiful place in all India, with the one exception of Barrackpore. Wathen met at dinner Sir Edward Stanley and his lady, Dr. and Mrs. McKinnon—the Doctor was the Senior Surgeon at the Residency—Mr. John Hall and his wife Rosemary Ann—the mother of Charles, Rose, Emma, Ellen; Edward William Phillips and Morris James; Mr. Haliburton the Sheriff, and many others, all the best people in fact, which seems to have gratified our globe-trotter very much. Dr. McKinnon lived at Treelough, his country place near the Burman village, and thither Wathen repaired and from there made expeditions to the corn mills of Mr. Amee at Ayer Itam, and also, with Mr. Phillips' permission, he ascended to "the top of Penang mountains" and visited "Convalescent." On his way he passed a handsome dwelling which he was informed was once the residence of Colonel Macalister, formerly Governor of Penang, who with his lady and children and near 200 persons were lost in a typhoon off the coast of China. "These anecdotes," the timid little man exclaims "leave an unpleasant impression on the mind, particularly at a time when one is engaged in the prosecution of a long and dangerous voyage!" However, he recovered his spirits and spent a happy month walking about the lanes near Mount Olivia and the Burman village: or in being carried in the Doctor's palanquin to George Town, where he walked with much interest, about the streets. It must have been very different then to now, for then we find many trades were in the hands of Europeans. There were Europeans working as Printers, Tavern Keepers, Fiddler, Hair Dresser, Coachmaker, Watchmaker, Cooper and Shipwright. The Governor's coachman and valet were also English. Among his little jaunts we can well imagine that he visited the Post Office and perhaps he was somewhat tickled by finding the following notice:

"No letter will be received at the Post Office without the postage being sent with it, nor will any letter be delivered unless the postage is paid to the Peon, or the Person signs a receipt for it. For the accommodation of the Residents on the Island however a Register will be permitted to be kept for this Postage account on the understood condition that all postage claims are *regularly settled every month.*"

On October 17th Wathen attended a christening at Treelough of an infant daughter of Dr. and Mrs. McKinnon. The Register, now in St. George's Church, shows that there were two daughters of the Doctor baptized that day—Maria Sophia and Sophia Jane —but Wathen seemed to have been more struck by the appearance of the Ayah than by anything else, and may have overlooked Maria Sophia or Sophia Jane, or been confused by the repetition of the name. According to him "The most remarkable object at this ceremony was an antient Hindoo nurse who had lived many years in the family. She was dressed in a style so youthful and gay, and so bedizened with mock jewels, in her ears, nose, hair, etc. and was so full of consequence upon this grand occasion that the Doctor, in making me observe her airs, thought it proper to say that though this vanity of finery was ridiculous in so old a duenna, yet it was a comical fault and pardonable, as she was an excellent servant, careful and faithful, affectionate to the children and devoted to her mistress."

She seems to have been rather a jewel of a servant and somewhat of an exception to the usual run of domestics for, as a contrast to her, it is interesting to read the following notice which was issued about the time of Wathen's visit to the Island:—

"Almost daily complaints having been made to the Magistrate respecting servants leaving the employ of their masters without giving intimation of their intention of so doing and thereby putting such employers or their families to great inconvenience. It is hereby ordered that all persons serving in the capacity of servants on this island, are to give their employers warning of their intention of quitting their service one month at least previous to their so doing. And any servant who shall be found guilty of acting contrary of this order, will be taken up and brought before the Sitting Magistrate where he will be fined a sum not exceeding 10 Spanish dollars and be liable to be committed to the House of Conviction for a period not exceeding one month."

Registration of Servants was not necessary in those days. They managed quite well without it, or at least found other methods of dealing with the domestic problem. A few days after the McKinnon Baptisms, Wathen attended a funeral in the old cemetry and there was much impressed by "two ancient sons of Neptune" who remained, after the funeral, one at each grave (for there were two British seamen buried at the time) leaning on their sticks in deep contemplation. "Meagre was their look and pale" —"some baleful disease had seized their vitals"—whose vitals he referred to is not quite clear.

However, on the whole he thoroughly enjoyed himself and his last remarks on Penang were these: "It is with regret I quit this delightful spot, emulating in beauty and produce the seat of Paradise itself. I shall ever cherish the remembrance of the kindness I received from those families in it, with whom I had the honour of being acquainted, and I request that they will accept my thanks, esteem and gratitude."

And here too we must take leave of Penang and those early days of its existence.

PLATE I

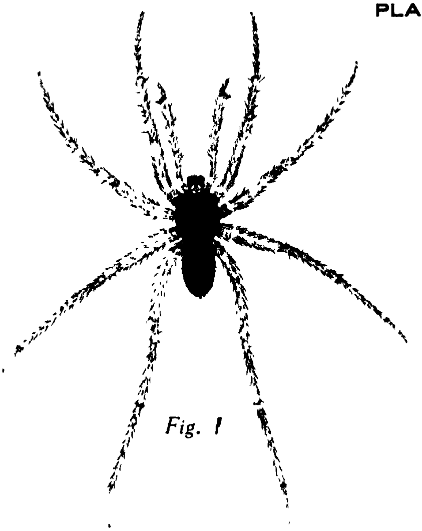


Fig. 1

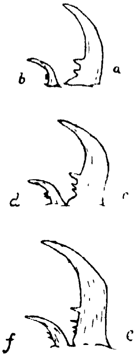


Fig 5

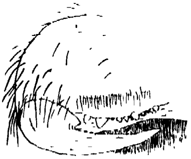


Fig. 4

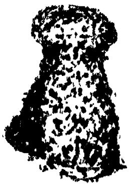


Fig. 2

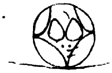


Fig. 7

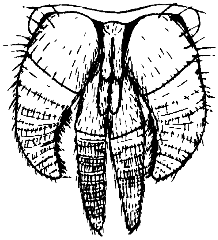


Fig. 3

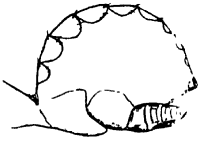


Fig. 8

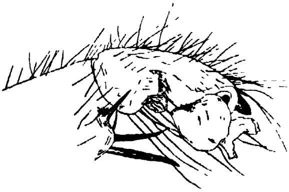
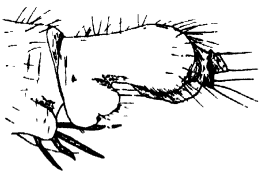


Fig. 6

(b),— from outside



A New Spider of the Genus *Liphistius*.

BY H. C. ABRAHAM.

The series of spiders from which the following descriptions were made was collected, with the exception of one female, by myself in the dark caves at Batu Caves, Selangor, F. M. S., during December 1921 and January 1922. This cave is situated in one of those isolated, precipitous, limestone hills which form such a characteristic feature of many parts of this country; the particular hill in question being some seven miles north of Kuala Lumpur, with the mouth of the cave about 300 feet above sea-level. The female above referred to was collected by Capt. H. M. Pendlebury, Systematic Entomologist, F. M. S. Museums, whilst on an expedition to the summit of Gunong Tahan, the highest point of the Malay Peninsula, during November 1921.

Since writing these notes, I have been extremely interested to see, amongst the Nature Study Photographs exhibited at the Malaya-Borneo Exhibition (April 1922), a picture taken on Gunong Angsi, Negri Sembilan, about 2,500 feet above the sea, by Mr. F. de la Mare Norris of the F. M. S. Agricultural Department, of a large species of *Liphistius* at the mouth of its retreat. The latter is a more or less vertical tube (apparently about 18 inches long) sunk into the soil with its mouth held open by anchoring lines similar, but used in a different manner, to those described under *L. batuensis* (*intra* p. 19); the trap-door seems from the photo to be similar to that described in this paper. From the rough description of the spider given to me by Mr. Norris I am inclined to believe that it is *L. birmanicus* Thorell, but hope shortly to be able to publish a detailed description of both spider and nest, as Mr. Norris has very kindly promised to secure for me specimens and photos of both on the next occasion on which he visits Gunong Angsi.

The point of immediate interest brought out by this photograph is that the Gunong Angsi species appears to build its retreat in the form of a tube *in the ground*, whilst the spiders found by me in Batu Caves made theirs *not* in the guano on the cave floor (where I discovered other small Mygalomorph spiders had sunk their tubes) but on the walls of the cave at, apparently, any height above the ground, sometimes, but by no means always, using a small hollow in the face of the rock for the bottom of the nest to rest in. This appears to indicate that these spiders have been cave-dwellers for a sufficiently long period of time to have modified considerably the original form of nest (assuming, as seems natural, that the open-air form is the original one), this modification probably having taken place on account of the fact that their prey appears to frequent mostly the walls of the cave, so that their nests being there also gives the spiders a retreat close at hand, if they are alarmed whilst hunting.

Up to the present time five descriptions have been published of specimens of the genus, *viz*:—

(1) *L. desultor* Schiödte, *in* Kroyer, *Naturh. Tijdsk.* 2, II, p. 621, (1849).

(2) *L. mamillanus* O. P. Cambridge, *Ann. Mag. Nat. Hist.*, (4), XV, p. 249, (1875).

(3) *L. desultor* van Hasselt, *Vers. Med. K. Akad. Wetensch. A. Naturk.*, 2 Reeks, XV, p. 186, (1879).

(4) *L. sumatranus* Thorell, *St. Rag. Mal. e Pap.*, IV, p. 27, (1890).

(5) *L. birmanicus* Thorell, *Ann. Mus. Civ. Genoa*, XXXVII, p. 162, (1897).

It appears, however, that a comparison of these specimens has never yet been made, but, from a discussion of the various descriptions, carried out by Thorell in *St. Rag. Mal. e Pap.*, IV, pp. 26-31, (1890), and by Simon in *Hist. Nat. des Ar.*, I. p. 63, (1892) and II, p. 875, (1903), one is led to the conclusion that (1) and (2) are identical *i.e. L. desultor* Schiödte, and that (3) is a synonym of (4) *L sumatranus* Thorell, (3) having been described by van Hasselt under the impression that he was dealing with a specimen of (1). So that the genus *Liphistius* has consisted, up to the present, of three species, *viz*:—

L. desultor Schiödte (= *mamillanus* Cambr.).
L. sumatranus Thorell (= *desultor* van Hasselt).
L. birmanicus Thorell.

A short description of the last-named is given by Pocock in *Fauna Brit. India, Arachnida*, p. 156, (1900), and a description of the male of the same species by Simon in *Bull. Sci. Fr. Belg.*, 42, p. 70, (1908).

In a recent paper (*Ann. Mag. Nat. Hist.*, (9), X, p. 444, 1922) Mr. T. H. Savory points out the extreme interest attaching to spiders of the Family LIPHISTIIDAE as approaching more nearly than any others, in external structure, to the fossil spider (*Protolycosa*) of the Carboniferous strata of the Palaeozoic epoch. He regrets the fact that the internal anatomy of *Liphistius* has never yet been studied. The cause for this regret will, I hope, soon be removed as I am corresponding with Mr. B. H. Buxton with a view to supplying him with material for such investigation.[1]

The members of the Family LIPHISTIIDAE, which consists of the two genera *Liphistius* Schiödte, and *Anadiastothele* Simon, are distinguished from all other spiders by the facts, (i) that the dorsal surface of the abdomen is furnished with distinct terga,

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[1] I see Mr. Savory states also that the male palpus of *Liphistius* has never yet been described. He has evidently overlooked the description of *L. birmanicus* by Simon, quoted in the preceding paragraph. The description and figure of the palpus of my new species *L. batuensis* now given in this paper I hope will also prove of interest.

giving an appearance of segmentation, and (ii) that they possess eight spinnerets which are situated in a group near the middle of the ventral surface of the abdomen, far removed from the anal tubercle.

FAM. LIPHISTIIDAE.

Genus LIPHISTIUS Schiödte.

Liphistius Schiödte, *in* Kroyer *Naturh. Tijdsk.*, 2, II, p. 621, (1849). E. Simon, *Hist. Nat. Ar.*, I, p. 64, (1892); *op. cit.*, II, p. 875, (1903).

Liphistius batuensis, sp. nov.

Plate I, figs. 1 to 9.

FEMALE:

Colour: Varies in a rather a remarkable degree (see note p. 21) but is generally as follows:—Cephalothorax and mandibles, greyish-yellow to warm grey-brown; fangs, red-brown; lip, dull yellow; coxae of palpi, brownish; sternum and coxae of legs, dull yellow; legs and palpi, pale greyish-yellow with the distal extremities of the segments brownish; abdomen, upper surface dark dull yellow-grey to dull warm grey-brown, the terga being dark grey to warm grey-brown, under surface, dull yellowish-grey becoming darker posteriorly, opercula of stigmata dull yellow, region around epigyne pinkish; sides and under surface of abdomen thinly clad with coarse down-lying dark hair.

Cephalothorax: Three or four coarse up-standing black bristles in a median longitudinal row are placed just behind the ocular tubercle and 6 more pointing forward along the front margin; of this latter series the 2 innermost bristles are slightly longer and stouter, and the 2 outermost shorter and more slender, than the intervening ones.

Eyes: Eight in number, and grouped closely together on a circular tubercle on the front margin of the cephalothorax. The laterals of the front row are largest, their front margins occupying the whole of the lower half of the tubercle. The medians of the same row are minute and, a short distance apart, are situated above the inner margins of the lateral pair. The rear row is recurved, the laterals, rather smaller than the front pair, which their lower edges touch, are ovate, broadest anteriorly, and occupy the posterio-lateral margins of the tubercle. The rear medians, slightly smaller still, ovate with the smaller end pointing backwards, lie above and between the side eyes. The small front median eyes are black and like day eyes, the remainder colourless and probably nocturnal. There are 3 or 4 upstanding curved black bristles disposed along the median line of the ocular tubercle. The eyes in both sexes are alike and are shown in Fig. 7.

Mandibles (Fig. 4): Stout and about 2/5 as long as the cephalothorax. The Falx is flat on the inside and convex exteriorly; it is slightly hollowed at the base and thence arched anteriorly. The apical and inside front margins are furnished with stout upstanding black bristles. The external and anterior surfaces are clothed with scattered black bristles whilst the inner surface has scattered short down-lying hairs. On the inner margin of the falx-sheath are 9 (rarely 10) teeth, the arrangement of which as regards relative size is somewhat variable but is in general much as is shown in Fig. 4. Both margins of the falx-sheath are furnished with a fringe of long reddish bristles; on the inner margin is also a shorter and finer similar fringe. The Fang is long and stout, slightly curved.

Lip: Wider than the front of the sternum and about twice as broad as long, and rounded in front where it is furnished with a number of slender bristles.

Sternum: More than twice as long as it is wide in the middle, truncate anteriorly and rather sharply attenuated posteriorly, separating the coxae of the 4th pair of legs; it is furnished with numerous long black slightly curved bristles.

Legs: Clothed with black bristles arranged more or less in longitudinal series. The coxae are about 2¼ times as long as wide, those of the 4th pair being separated by the extension of the sternum. The femora are furnished, in addition to the numerous bristles mentioned above, with 4 longitudinal series of spines, one along the middle of the upper side, one along the front upper edge, and one along each edge of the under side; the spines of the last two rows are particularly long and numerous. There is also a pair of curved spines on the upper surface near the distal end. The patellae have two long curved bristles on the upper side, one near the base and the other near the apex, there are also 4 or 5 long curved bristles in a bunch at the distal end. On the tibiae are numerous spines and bristles in more or less longitudinal series. Those of the 1st and 2nd pairs have, in addition, a series of 4 very stout long outstanding spines down each edge of the underside. The metatarsi of the 1st and 2nd pairs have a series of 5 stout long outstanding spines down each edge of the underside; those of the 3rd and 4th pairs have a bunch of curved spines at the distal end. The tarsi are clothed with numerous bristly hairs. Those of the 1st, 2nd and 3rd pairs have also a series of 5 spines along each edge of the underside, the spines on the 3rd pair being much finer than those on the 1st and 2nd; on the 4th pair these series are represented by 3 pairs of slender spines on the apical half of the under surface. The tarsal claws (Fig. 5) are 3 in number, long and powerful; the superior pair are about twice the size of the inferior claw and are armed with 2 to 4 sharp teeth of which those nearest the base are the smallest, the others increasing in size successively; the spacing and relative size of these teeth varies slightly, in some cases, on the two superior claws of the same leg. The inferior claw has 2 or 3 minute teeth on the basal half.

Palpi: extremely leg-like in appearance and similarly furnished with black bristles. The coxae are also provided with a thick fringe of long reddish curved hairs along the inner margin. The femora are bowed so that when out-stretched their distal ends are immediately in front of the mandibles. They have a long dark spine near the base, and another near the apex; and also a series of about 9 long black spines along each margin of the under side. The patellae are furnished with a long spine on the upper side near the base and another near the apex, as well as several long curved spines on the inner surface. The tibiae are armed with 9 long, stout, out-standing, dark spines in 3 longitudinal series of 3; one row down each edge of the under surface, and the third series down the inner surface. The tarsi are thickly clad with longish bristles, and have a row of 7 stout out-standing spines along each edge of the lower side. The claw is slightly curved, and has near the base, 3 small contiguous teeth.

Abdomen: oval, about 7/8 as wide as long. It is divided into 9 transverse dorsal terga from the base to the rear end: of these the 3rd and 4th are the largest, and the 9th, much the smallest, is a little distance above the anal tubercle. Each of these terga has 4 black bristles directed backwards along its posterior margin, the median pair longer than the lateral; these are easily broken off. There are also short, down-lying, bristly hairs irregularly scattered on each.

The inferior lateral spinnerets consist of two joints, the basal one being stout, semicircular in outline, and plentifully furnished with long, dark, out-standing, bristly hairs; the second joint, 1½ times as long as the basal, is bluntly conical, incurved, and is divided into 10 to 12 false articulations by chitinous rings each of which is fringed along the distal margin with long, coarse hairs in addition to a number of shorter ones scattered over the surface. The inner margin of the distal joint, from the basal to the apical annulation, has a thick fringe of long, reddish, curved hairs. They are separated at their bases by a distance not quite equal to half the diameter of their basal segments. The superior laterals are contiguous and likewise two-jointed, the basal segments nearly parallel (slightly broader at the apex than at the base), about equal in length to the 1st joint of the inferior laterals, and of a diameter at the apex of nearly ½ their length; they are clothed with long, coarse, scattered hairs. The 2nd joint is conical, about three times as long as its diameter at the base and bluntly rounded at the apex where it tapers to about ⅓ the width of its base; it is divided by 12 chitinous rings into false articulations, and there is an incomplete annulation between the 1st and 2nd of these; each of these rings is fringed along the distal margin with long coarse hair; there is also a single, slightly curved bristle near the apex of the joint on the under side. The 4 median spinnerets are about equal in size, and are one-jointed. They are arranged in pairs, the members of each pair being close together, the inferior pair lies between the inferior laterals, with the superiors a little behind them. They are cylindrical in form, about ¼ as broad as long, with their distal ends blunt. They are clad with long, coarse, dark, scattered hairs. The spinnerets, which are alike in both sexes, are shown in Fig. 3.

The anal tubercle, not quite at the end of the ventral surface, is conical and clothed with scattered, longish, coarse hairs.

MALE:

Colour: the single specimen obtained is coloured thus:—Cephalothorax and mandibles, dull greenish-brown; fangs, red-brown; lip, pale dull yellow-brown; coxae of palpi, reddish; sternum and coxae of legs, pale dull yellow-brown; legs and palpi, the same with distal extremities of all joints brownish; abdomen, upper surface and sides dull greyish-brown, dorsal terga dark dull olive-brown with their posterior margins yellowish, ventral surface pale dull yellow-brown, the opercula of the stigmata being warm yellow with the edges of the epigastric fold pinkish, and the anal tubercle yellow. The sides and under surface of the abdomen are clad with long, slender, black bristles.

Cephalothorax: similar to that of the female except that the median row of bristles behind the ocular tubercle appears to be lacking.

Mandibles: similar in form to those of the female but not quite so large in proportion.

Legs: considerably longer than those of the female and the coxae somewhat stouter. The femora, patellae and metatarsi are armed in a manner similar to the corresponding joints of the female, but the bristles and spines are distinctly more slender. The tibiae lack the long outstanding spines which are found on those of the 1st and 2nd pairs in the female. The tarsi are furnished with numerous bristly hairs and have also a series of very fine spines along each edge of the under-side; the series on the 1st, 2nd, and 3rd pairs each consisting of 5, and those on the 4th of 6 spines. There is a light scopula of very fine pale hair on the distal half of all the tarsi.

Palpi: furnished on the upper surfaces of femora, patellae and tibiae with black bristles in longitudinal rows. The coxae, femora and patellae are similar to those of the female. The tibiae are slightly dilated basally and have a blunt apophysis on the outer side at the distal end with 4 long, stout, forwardly-pointing spines (Fig. 9).

The distal joint is clad with long spinous bristles and has on the outer side of the base a circular cushion covered with a number of short, stout, pointed spines; from this the palpal organ projects in a stout, blunt point alongside a crutch-shaped projection of the bulb. The exact forms and relative positions of the various parts are shown in Figs. 6 and 9.

Abdomen: longer in proportion to its width than that of the female, being ⅘ as wide as long.

Measurements (mm.) :—

FEMALE.

	Length.	Breadth.
Cephalothorax	5.5	4.9
Abdomen	5.4	4.9
Falx	3.0	—

Lengths of		Coxae	Tr: & Fem:	Pat: & Tib·	Metat:&Tar:	Total.
Legs	I	2.75	4.8	5.1	3.9	16.55
	II	2.5	5.0	5.1	4.5	17.1
	III	2.5	5.0	5.1	5.0	17.6
	IV	2.2	6.2	6.8	8.1	23.3
Palpi		2.0	4.3	4.7	2.9	13.9

MALE.

	Length.	Breadth.
Cephalothorax	5.4	5.1
Abdomen	5.0	3.8
Falx	2.1	—

Lengths of		Coxae	Tr: & Fem:	Pat: & Tib·	Metat:&Tar:	Total.
Legs	I	2.4	5.8	6.6	6.8	21.6
	II	2.7	6.3	7.0	7.6	23.6
	III	2.7	6.3	7.3	9.3	25.6
	IV	2.9	7.9	8.9	13.0	32.7
Palpi		1.9	3.8	5.8	1.9	13.4

Nest: consists of a sac-shaped tube, 35 to 40 mm. in length, forming a retreat below which is a cavity in which the egg-sacs are deposited, curtained off from the retreat and from each other by a fine sheet web. A trap door of simple wafer type closes the tube and appears to be fastened down by the spider when the latter is within (see below p. 20). The nest is built, with its entrance upwards, upon the more or less vertical side-walls of the cave and is anchored in position by a number, generally about six, of long lines of twisted silk which are attached to the lower lip of the opening of the retreat at approximately equal intervals, their distal ends being fixed to the cave-wall. The entire structure, including the anchoring lines, is thickly covered with particles of sand, etc., giving it a very close resemblance to an excrescence of rock on the cave-wall (Fig. 2). The eggs are ivory-white in colour, about 1 mm. in diameter, and are deposited in the chambers of the nest as a spherical egg-mass about 6 mm. in diameter. The young, when sufficiently grown, apparently escape from the egg-chamber by burrowing through its walls. The retreat of the male is exactly similar to that of the female except that it lacks the egg-chambers.

Habits: When captured all the specimens were within their retreats with the legs and palpi doubled up and closely pressed to the body: the lid of the nest was in each case not quite closed, thus seeming to indicate that the spiders had retired there in alarm on the approach of our lights. On approaching the finger towards the opening of the nest, the lid was at once snapped down and held tightly closed; which seems to show that the spider itself holds the trap-door shut whenever it has been driven, by the proximity of danger, to take refuge within its retreat.

From remains found in some of the nests and the fact that they occur plentifully in the same part of the cave, it appears to be extremely probable that the principal food of the spider is the grasshopper *Paradiestrammena gravelyi* Chop., which it would obtain by hunting along the cave-walls, and which it apparently takes to its nest to devour. An interesting find in one of the nests was the larval form of an earwig (probably *Chelisoches morio* (Fabr.)); these earwigs normally remain much nearer the mouth of the cave, separated from the chamber where the *Liphistius* are found by a flooded portion of the cave floor, so that probably the specimen found in the spider's nest was one which had been accidentally transported to that part of the cave.

The foregoing notes upon the structure of the nests, and the habits of the spider are written from observations made of the specimens obtained in Batu Caves and so may not apply to the single specimen collected in Pahang, of which we have no information on these points.

Locality: The dark cave, Batu Caves, Selangor, 300 feet above sea-level; December 1921 and January 1922. The specimens were all obtained in a side-chamber some distance from the entrance of the cave; their nests were not uncommon in this situation.

One specimen, a female, was collected by Capt. H. M. Pendlebury between Kuala Teku and Wray's Camp (Gunong Tahan), Pahang; virgin jungle, 500′-3,500′; November 1921. The exact locality is not recorded more nearly than this.

Note on Colour: Three of the females exhibited rather striking differences in colour from that generally prevailing. Of these a small one collected in Batu Caves has the cephalothorax of a dull reddish-purple and the abdomen dark bluish-purple, with the dorsal terga black; whilst the legs are pinkish-purple with the metatarsi and tarsi yellowish.

Another, from the same place, and of about the same size as the female of which the measurements are given above, has the cephalothorax dark greyish-green, the abdomen dull pinkish-brown, and the dorsal terga dark grey-green with lateral and posterior margins yellowish.

The specimen collected in Pahang has the cephalothorax dark warm grey-brown, the abdomen pale cold grey, the dorsal terga very dark grey (practically black), and the legs dull olive-brown with very faint brown markings.

Specimens examined: 11 adult females; 1 adult male; 4 immature. I have sent the Types to the British Museum, and cotypes of the female to Mr. H. R. Hogg; to Raffles Museum, Singapore; and to the F. M. S. Museum, Kuala Lumpur.

To Mr. Hogg I must express my gratitude for kindly advising me in the preparation of this paper, for checking my description and comparing the specimens with other *Liphistius* species including Types in the British Museum. A worker in the East is necessarily at a disadvantage; the ready assistance of a specialist at home is therefore doubly appreciated.

PLATE I.

Liphistius batuensis, sp. nov.

Fig. 1. Male × 1½ (about).
„ 2. Nest × ¾ (about); the anchoring lines have been cut off short in the figure.
3. Spinnerets.
4. Mandible of ♀ from inside.
5. *a.* Superior tarsal claw of 1st pair.
  b. Inferior „ „ „
  c. Superior tarsal claw of 3rd pair.
  d. Inferior „ „ „
  e. Inner superior tarsal claw of 4th pair.
  f. Inferior tarsal claw of 4th pair.
6. Palp of ♂,—palpal organ, tarsus, and apex of tibia from outer side.
7. Eyes.
8. Profile of abdomen × 4 (about).
9. Palp of ♂ as in Fig 6, but seen from above.

New or Noteworthy Bornean Plants.

PART III.

By ELMER D. MERRILL
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[*Concluded from Journal No. 86, page 342*]

ERICACEAE.

Vaccinium Loureiro.

Vaccinium moultonii sp. nov.

Frutex vel arbor parva, racemis leviter pubescentibus exceptis glaber; ramulis 2 mm. diametro; foliis breviter petiolatis, ovatis vel oblongo-ovatis, subcoriaceis, 10—15 cm. longis, integris, perspicue caudato-acuminatis, basi rotundatis vel acutis, nervis utrinque 3 vel 4, curvato-adscendentibus; racemis solitariis vel binis, axillaribus, 3—4 cm. longis, paucifloris; floribus ellipsoideis, 5 mm. longis, bracteis bracteolisque parvis, lanceolatis, 1—2 mm. longis; calyce pubescente, lobis ovato-lanceolatis, acuminatis, 1.8 mm. longis; corolla ellipsoidea, lobis brevibus; filamentis pubescentibus, antheris 1.5 mm. longis.

A shrub or small tree entirely glabrous except the sparingly pubescent racemes; ultimate branches terete, about 2 mm. in diameter, brown, smooth or with few conspicuous, scattered lenticels. Leaves ovate to somewhat oblong-ovate, subcoriaceous, olivaceous, 10 to 15 cm. long, 4 to 6.5 cm. wide, entire, the base rounded to acute, the apex very conspicuously caudate-acuminate; lateral nerves, including the basal pair, 3 or 4 on each side of the midrib, curved-ascending, rather obscurely anastomosing, the reticulations distinct on both surfaces; petioles 2 to 3 mm. long. Racemes solitary or in pairs, axillary, slender, 3 to 4 cm. long, few-flowered, sparingly pubescent, the pedicels 2 to 3 mm. long, the subtending bracts lanceolate, acuminate, 2 mm. long, slightly pubescent, the bracteoles 2, lanceolate, acuminate, 1 mm. in length. Flowers about 5 mm. long, ellipsoid. Calyx tube subovoid, somewhat pubescent, the lobes ovate-lanceolate, acuminate, 1.8 mm. long. Corolla glabrous, subterete, about 4.5 mm. long, contracted at the throat, the lobes ovate, obtuse, 0.5 mm. long. Stamens 10, equal, the filaments pubescent, 2 mm. long; anthers 1.5 mm. long, the apical tips 0.8 mm. in length, the dorsal spurs slender, 0.6 mm. long. Style 3.5 mm. long, included.

Sarawak, Upper Baram, Gunong Temabo, *Major J. C. Moulton 6676,* November 5, 1920. Altitude about 1200 m. A species well characterized by its ovate, conspicuously caudate-acuminate leaves, the acumen attaining a length of 3 cm. as well as by its solitary or paired, few-flowered racemes, and by its scattered lateral nerves, the uppermost nerves frequently leaving the midrib near the middle of the leaf. If is probably as closely allied to *Vaccinium bigibbum* J. J. Sm. as any other described form, differing among other characters in its flowers being more than twice as laige as in Smith's species.

MYRSINACEAE.

Ardisia *Swartz.*

Ardisia sublepidota sp. nov. § *Acrardisia.*

Frutex erectus, ramulis inflorescentiisque junioribus adpresse furfuraceo-lepidotis exceptis glaber; foliis chartaceis, oblongis, 20—35 cm. longis, acutis vel obtusis, basi acutis vel subrotundatis, subolivaceis, nitidis, utrinque perspicue sed pauce elevato-punctatis, nervis utrinque circiter 25, perspicuis; petiolo 1—1.5 cm. longo, distincte alato; inflorescentiis terminalibus, pedunculatis, tripinnatim paniculatis, 20—30 cm. longis, ramis primariis paucis, usque ad 15 cm. longis, floribus umbellatim dispositis: floribus breviter pedicellatis, 5-meris; sepalis elliptico-oblongis, obtusis, 2.5 mm. longis, perspicue glandulosis, margine minutissime ciliatis, patulis; petalis ovatis, subacutis, 5 mm. longis, eglandulosis; ovario glabro; stylis 4 mm. longis, glanduloso-punctatis, connectivo eglanduloso.

An erect shrub about 3 m. high, the young branchlets and inflorescences minutely appressed-furfuraceous-lepidote, in age entirely glabrous, the ultimate branchlets about 3 mm. in diameter. Leaves alternate, chartaceous, oblong, subolivaceous, shining, 20 to 35 cm. long, 7 to 10 cm. wide, acute or obtuse, the base acute to somewhat rounded, both surfaces with conspicuous, widely scattered, somewhat elevated glands; lateral nerves about 25 on each side of the midrib, spreading, prominent on the lower surface, curved and obscurely anastomosing close to the margin, the reticulations lax, not prominent; petioles 1 to 1.5 cm. long, distinctly undulate-winged. Panicles terminal, peduncled, 20 to 30 cm. long, the primary branches few, up to 15 cm. long, the flowers umbellately disposed on the ultimate branchlets, 5 to 12 in an umbel, the subtending bracteoles oblong, 2 mm. long, with few large glands, deciduous, the pedicels in flower about 6 mm. long, in fruit about 1 cm. long, sparingly glandular. Sepals 5, elliptic-oblong, obtuse, 2.5 mm. long, conspicuously glandular, the margins minutely ciliate. Petals pink, ovate, subacute, about 5 mm. long, eglandular. Anthers 4 mm. long, subsessile, the connectives eglandular. Ovary ovoid, eglandular, glabrous; style glandular-punctate, 4 mm. long, not exserted in bud. Mature fruits red when fresh, reddish-brown when dry, ovoid, 5 to 6 mm. long, eglandular, minutely and broadly apiculate.

British North Borneo, Sibuguey, near Sandakan, *Ramos 1645* (type); Labuk District, *Domingo 1109*, the former number with flowers in November, the latter with mature fruits in April. On forested slopes at low altitudes. A species manifestly in the alliance with *Ardisia polyactis* Mez, but readily distinguished, among numerous other characters, by its much larger leaves, its distinctly winged petioles, and its distant nerves.

Ardisia diversilimba sp. nov. § *Acrardisia.*

Frutex vel arbor parva, inflorescentiis leviter pubescentibus exceptis glaber; foliis alternis, coriaceis vel subcoriaceis, sessilibus, integris, ellipticis vel oblongo-obovatis, basi amplexicaulibus, cordatis vel auriculatis, majoribus 11—18 cm. longis, acutis vel breviter acuminatis, nervis utrinque circiter 15, minoribus 1.5—2.5 cm. longis; paniculis terminalibus, 10 cm. longis, bipinnatim paniculatis, ramis primariis paucis, floribus umbellatim dispositis; sepalis circiter 1 mm. longis, margine leviter ciliatis; petalis lanceolatis, imbricatis, 4—4.5 mm. longis, glandulis paucis instructis.

A shrub or tree, glabrous except the sparingly pubescent inflorescences. Leaves alternate, coriaceous or subcoriaceous, very dissimilar in size, the upper ones all amplexicaule, the larger ones elliptic to narrowly oblong-obovate, 11 to 18 cm. long, 5 to 7 cm. wide, acute or shortly acuminate, entire, the base rather deeply cordate and clasping the stem, or the bases of the lower ones slightly auricled, all sessile, the upper surface olivaceous, the lower brownish and with numerous conspicuous glands especially near the margin; lateral nerves about 15 on each side of the midrib, mostly spreading, distinct, anastomosing, the primary reticulations rather lax and distinct on both surfaces: smaller leaves ovate to oblong-ovate, 1.5 to 2.5 cm. long, amplexicaul. Panicles terminal, rather few-flowered, about 10 cm. long, the primary branches few, spreading, the flowers umbellately disposed at the tips of the secondary branches, their pedicels about 8 mm. long. Sepals about 1 mm. long, oblong-elliptic, obtuse, spreading, not at all imbricate, each with 1 or 2 glands or frequently eglandular, their margins slightly ciliate. Petals lanceolate, acuminate, imbricate, 4 to 4.5 mm. long, with few conspicuous glands. Anthers lanceolate, acuminate, 3 mm. long, their connectives glandular. Ovary glabrous, glandular-punctate; style 3 mm. long.

Sarawak, Upper Baram, Gunong Temabo, *Major J. C. Moulton 6750,* November 2, 1920. Altitude about 2100 m. A very distinct species belonging in the group with *Ardisia caudifera* Mez and *A. amplexicaulis* Bedd., strongly differentiated by its very diverse leaves which are all sessile, the upper ones being very prominently cordate at their bases and amplexicaul.

Rapanea Aublet.

Rapanea multibracteata sp. nov.

Frutex glaber, circiter 2 m. altus, ramis incrassatis, ramulis 2.5—3 mm. diametro; foliis coriaceis, oblongo-obovatis, symmetricis, 4—7 cm. longis, apice rotundatis retusisque, basi cuneatis, utrinque punctatis, nervis tenuibus subobsoletis; inflorescentiis ♂ numerosis, axillaribus et in axillis defoliatis, solitariis, incrassatis, oblongo-obovoideis, 5—7 mm. longis, 3—4 mm. diametro, bracteis numerosis orbiculari-ovatis rotundatis subcoriaceis margine ciliatis imbricatis; floribus ♂ brevissime pedicellatis, 5-meris; sepalis oblongo-ovatis, acutis, 1 mm. longis, haud ciliatis, glandulis paucis instructis; petalis elliptico-ovatis, oblongo-ovatis, 1.5 mm. longis, glandulis paucis perspicuis instructis.

An entirely glabrous shrub about 2 m. high, the branches and branchlets thickened, rather smooth, reddish-brown, the ultimate branchlets 2.5 to 3 mm. in diameter. Leaves coriaceous, oblong-obovate, symmetrical, 4 to 7 cm. long, 1.5 to 2.5 cm. wide, the upper surface subolivaceous, shining, the lower surface paler, both surfaces rather conspicuously punctate-glandular, the apex rather broadly rounded and retuse, base cuneate; lateral nerves slender, very obscure or obsolete, the midrib impressed on the upper surface, prominent on the lower surface; petioles 5 to 7 mm. long. Staminate inflorescences axillary and in the axils of fallen leaves, solitary, many-flowered, 5 to 7 mm. long, 3 to 4 mm. in diameter, oblong-obovoid, supplied with very numerous, persistent, orbicular-ovate, rounded, subcoriaceous bracts about 1.5 mm. in diameter, the bracts brown when dry, their margins ciliate. Staminate flowers numerous, 5-merous, white, entirely glabrous, their pedicels 1 mm. long or less, the flowers slightly projecting beyond the bracts. Sepals membranaceous, oblong-ovate, acute, 1 mm. long, with few scattered glands or sometimes eglandular. Petals elliptic-ovate, obtuse, membranaceous, somewhat spreading, 1.5 mm. long, with few but conspicuous glands. Anthers 0.7 mm. long, somewhat glandular toward their apices.

British North Borneo, Sandakan, *Ramos 1345*, October, 1920. Along the inner border of mangrove swamps. A species belonging in the group with *Rapanea densiflora* Mez and *R. crassifolia* Mez of New Guinea and Norfolk Island, but differing from both of these in very numerous details.

EBENACEAE.

Diospyros Linnaeus.

Diospyros juppii sp. nov. § *Embryopteris.*

Arbor glabra, ramulis teretibus, 3—4 mm. diametro; foliis oblongis, alternis, subcoriaceis, nitidis, circiter 26 cm. longis, 7—8 cm. latis, basi rotundatis, apice breviter acuminatis, nervis utrinque circiter 15, cum reticulis utrinque distinctis; inflorescentiis caulinis, fasciculatis, floribus pedicellatis, 5-meris, glabris vel subglabris; calyci cupulato, lobis coriaceis, reniformibus, erectis, rotundatis, 3—3.5 mm. latis; corollae tubo 8—10 mm. longo, crasso, sursum angustato, lobis patulis vel recurvatis, reniformibus, 6 mm. latis; staminoideis circiter 15, linearibus, 1-seriatis, glabris, 5—6 mm.

longis; ovario glabro, elongato, circiter 12-locellato; fructibus oblongis vel oblongo-ovoideis, circiter 10 cm. longis, glabris, nitidis, seminibus compressis, 3 cm. longis, albumine aequabile.

A nearly glabrous tree, the branchlets terete, somewhat brownish when dry, slightly rugose, 3 to 4 mm. in diameter. Leaves subcoriaceous, oblong, alternate, shining, about 26 cm. long, 7 to 8 cm. wide, the base rounded, the apex shortly acuminate, the upper surface grayish-olivaceous when dry, the lower surface somewhat brownish; lateral nerves about 15 on each side of the midrib, slender but rather distinct on both surfaces as are the reticulations; petioles rather stout, about 1 cm. long. Flowers in small fascicles on the trunk, their pedicels somewhat pubescent, up to 8 mm. long, each subtended by 1 or 2 bracts which are broadly ovate and about 1.2 mm. long. Flowers 5-merous, the pistillate ones nearly glabrous. Calyx somewhat cup-shaped, 5 to 6 mm. long, the lobes erect, reniform, coriaceous, 2 to 2.5 mm. long, 3 to 3.5 mm. wide. Corolla tube stout, about 8 mm. long, narrowed upward and 4 mm. in diameter at the throat, the lobes reniform, spreading or recurved, coriaceous, about 6 mm. wide, 4 mm. long. Staminodes about 15, 1-seriate, united below and with the staminal tube, linear, glabrous, 5 to 6 mm. long. Ovary glabrous, elongated, narrowed upward, about 12-celled, the stigmas oblong, about 4 or 5, about 1 mm. in length. Fruits fleshy, oblong or oblong-ovoid, smooth, shining and brownish when dry, about 10 cm. long, 5.5 cm. in diameter, the pulp acid, edible. Seeds compressed, 3 cm. long, 1.4 cm. wide, the albumen smooth.

British North Borneo, Bettotan River Valley, *Jupp 727*, September, 1919. Mr. W. O. Jupp who collected this species states that during a period of some twenty years that he has resided in British North Borneo, many of which were spent in the country outside of Sandakan, he had seen only three specimens of this tree. His attention was attracted to it by the fact that the large conspicuous fruits are borne on the trunks and further that the acid fruits are used by the natives as a relish with fish. In vegetative characters this species closely approximates the Philippine *Diospyros copelandii* Merr. and is manifestly allied to it, differing in numerous details in floral structure.

OLEACEAE.

Jasminum *Linnaeus.*

Jasminum crassifolium Blume Bijdr. (1825) 679.

British North Borneo, Sebuga and Batu Lima, near Sandakan, *Ramos 1432, 1787, 1848.* In forests at low altitudes. Luzon, Palawan, Java.

LOGANIACEAE.

Strychnos Linnaeus.

Strychnos ignatii Berg, Mat. Med. 1 (1878) 146; A. W. Hill. in Kew Bull. (1911) 290, *plate*.

British North Borneo, Batu Lima near Sandakan, *Ramos 1295*, in fruit, October, 1920. In damp forests at low altitudes. Previously known only from the Philippines, where it occurs in Samar, Leyte, and Mindanao.

APOCYNACEAE.

Epigynum Wight.

Epigynum borneense sp. nov.

Frutex scandens, ramulis junioribus inflorescentiisque exceptis glaber, ramis rubro-brunneis, glabris, ramulis leviter adpresse hirsutis; foliis membranaceis, oblongis, 6—10 cm. longis, nitidis, glaberrimis, breviter acute acuminatis, basi obtusis; cymis brevibus, paucifloris, ferrugineo-pubescentibus, bracteolis lanceolatis, circiter 2 mm. longis; corollae tubo 3 cm. longo, extus pubescente, intus villoso, lobis patulis, 1.4 cm. longis; folliculis 25—35 cm. longis, cylindraceis, 5 mm. diametro, acuminatis, obscurissime torulosis, leviter adpresse hirsutis, glabrescentibus.

A scandent shrub nearly glabrous except the very young branchlets and the inflorescences. Branches terete, slender, glabrous, reddish-brown, the ultimate branchlets about 2 mm. in diameter, sparingly appressed-hirsute, the indumentum ferruginous. Leaves opposite, membranaceous, entirely glabrous, pale-olivaceous, somewhat shining, oblong, 6 to 10 cm. long, 2 to 3.5 cm. wide, the apex shortly acute-acuminate, base usually obtuse; lateral nerves about 10 on each side of the midrib, slender, rather distinct, curved and arched-anastomosing near the margin, the reticulations lax, not prominent, with no intermediate secondary nerves from the midrib; petioles 5 to 8 mm. long, sparingly hirsute when young, ultimately glabrous. Cymes terminal and in the uppermost axils, sessile or shortly peduncled, few-flowered, rather densely fulvous-pubescent, often subtended by a few linear-lanceolate, foliaceous bracts 1 to 1.5 cm. long, the bracteoles lanceolate, about 2 mm. long. Flowers white, 5 to 10 in each cyme, their pedicels about 5 mm. long. Calyx lobes lanceolate, acuminate, pubescent, 2 to 3 mm. long, eglandular. Corolla tube about 3 cm. long, cylindric, pubescent, slightly inflated in the lower quarter opposite the insertion of the anthers, inside conspicuously villous, the lobes inequilateral, about 14 mm. long, 6 to 7 mm. wide, twisted to the left, crenulate on the upper margin, glabrous except the dorsal parts that are exposed in bud. Stamens inserted near the base of the tube, the filaments glabrous, 1 to 2 mm. long; anthers narrowly lanceolate, acuminate, 5 mm. long, the basal spurs 2 mm. in length.

Disk somewhat fleshy, glabrous, cylindric, crenately 5-lobed, nearly 1 mm. high. Carpels sparingly pubescent, about 1 mm. long. Follicles cylindric, slightly torulose, 25 to 35 cm. long, about 5 mm. in diameter, sparingly pubescent, ultimately glabrous or nearly so, longitudinally striate, the apex narrow, distinctly acuminate. Seeds numerous, 1.3 to 1.5 cm. long, narrowed below, the apex obliquely truncate, the coma silky, 2 to 2.5 cm. in length.

British North Borneo, Sandakan, *Ramos 1117*, September, 1920. In thickets and forests at low altitudes. This seems to be most closely allied to *Epigynum forbesii* King and Gamble of Sumatra, which is possibly represented by *Haviland 3048* from Sarawak. Among other characters the present species differs in its sparingly hirsute, not puberulent branchlets, longer flowers, and smaller, thinner leaves. *Epigynum beccarii* K. Schum. in Engl. and Prantl, Nat. Pflanzenfam. **4**, part 2 (1895) 178 is merely a *nomen nudum*, based on a Bornean specimen collected by Beccari.

Willughbeia *Roxburgh.*

Willughbeia (Urnularia) borneensis sp. nov.

Frutex scandens ramulis inflorescentiisque dense puberulis exceptis glaber; foliis chartaceis, oblongis vel oblongo-ellipticis, 11—14 cm. longis, nitidissimis, tenuiter acuminatis, basi acutis vel subrotundatis, nervis utrinque 8—10, subtus perspicuis, reticulis obsoletis; cymis axillaribus, longe-pedunculatis, paucifloris, 6—10 cm. longis, partibus junioribus dense olivaceo-puberulis; floribus 4-meris, corollae tubo glabro, 9 mm. longo, lobis obovatis, 2 mm. longis, patulis vel reflexis, margine revolutis; fructibus junioribus ovoideis, acutis, 2.5 cm. longis.

A scandent shrub, glabrous except the densely puberulent branchlets and inflorescences. Branches terete, somewhat rugose when dry and glabrous, rather densely and conspicuously lenticillate, the branchlets minutely and densely puberulent, the indumentum dark-brown. Leaves chartaceous, oblong to oblong-elliptic, 11 to 14 cm. long, 4 to 5.5 cm. wide, slenderly acuminate, the acumen 1 to 1.5 cm. long, blunt, the base acute to somewhat rounded, the upper surface brownish-olivaceous, smooth, strongly shining, the lower surface pale and with rather numerous, widely scattered, small glands; lateral nerves 8 to 10 on each side of the midrib, distant, straight, anastomosing directly with the arched and equally distinct marginal veins, the reticulations obsolete; petioles about 2 cm. long, when young puberulent, ultimately glabrous or nearly so. Cymes axillary, solitary, long-peduncled, few-flowered, 6 to 10 cm. long, the younger parts densely olivaceous-puberulent, the primary branches few, spreading, the lower ones up to 4 cm. long, the bracts and bracteoles coriaceous, ovate, acute or obtuse, the pedicels densely puberulent, 5 to 6 mm. long. Flowers yellow, 4-merous. Sepals oblong-ovate, obtuse, 2 mm. long, their basal portions and margins slightly pubescent. Corolla tube cylindric, glabrous, 9 mm. long, 1.5 mm. in diameter, the throat not appendaged, the lobes orbicular-obovate, rounded, slightly pubescent, 2 mm. long, recurved, their margins revolute. Stamens inserted slightly above the middle of the tube, the filaments 1.5 mm. long; anthers lanceolate, 2.5 mm. long, obtuse. Disk 0. Ovary ovoid, glabrous, 1-celled; style 3 mm. long, the stigma 1 mm. in length, narrowed from a slightly thickened base. Immature fruits ovoid, acute, 2.5 cm. long, glabrous, dark-brown and wrinkled when dry.

British North Borneo, Batu Lima, near Sandakan, *Ramos 1442*. In damp forests at low altitudes. Among other characters this species is distinguished by its 4-merous flowers. It clearly belongs in the group for which Stapf proposed the generic name *Urnularia*, but which he later found to be not distinct from *Willughbeia*; see King and Gamble in Journ. Asiat. Soc. Bengal **47**, part 2, (1907) 398, in note following *Willughbeia flavescens* Dyer. The species of *Urnularia* proposed by Stapf will have to be transferred to *Willughbeia*, *U. beccariana* Stapf becoming *W. beccariana* O. Ktz., the other two considered below:

Willughbeia ovatifolia (Stapf) comb. nov.

Urnularia ovatifolia Stapf in Hook. Ic. IV 8 (1901) sub. *t. 2711;* Merr. Bibl. Enum. Born. Pl. (1921) 497.

Willughbeia stapfii nom. nov.

Urnularia oblongifolia Stapf. l. c.; Merr. l. c., non *Willughbeia oblongifolia* O. Ktz.

CONVOLVULACEAE.

Erycibe *Roxburgh.*

Erycibe angulata Prain in Journ. As. Soc. Bengal **63**, part 3, (1894) 84, **74**, part 2, (1905) 291.

Erycibe paniculata Miq. Fl. Ind. Bat. Suppl. (1861) 248, non Roxb.

British North Borneo, Bettotan River, *Agama 705*, May, 1919. In forests at low altitudes. Malay Peninsula and Sumatra, with a closely allied form, *E. macrophylla* Hall. f., in Java.

BORAGINACEAE.

Tournefortia *Linnaeus.*

Tournefortia tetrandra Blume Bijdr. (1826) 845.

Tetrandra zollingeri Miq. Fl. Ind. Bot. **2** (1859) 928.

British North Borneo, Batu Lima, near Sandakan, *Ramos 1322*. In thickets on slopes at low altitudes. After examining Javan, Sumatran, and Malay Peninsula material and the descriptions I fail to see how *Tournefortia wallichii* DC. (*Tetranthera* *wallichii* Miq.) can be distinguished from Blume's species. Malay Peninsula, Sumatra, and Java, with a variety in the Moluccas fide Blume.

VERBENACEAE.

Petraeovitex *Oliver.*

Petraeovitex membranacea sp. nov.

Frutex scandens, inflorescentiis parce puberulis exceptis glaber, ramis teretibus vel obscure angulatis: foliis 3-foliolatis, foliolis oblongo-ovatis vel elliptico-ovatis, integris, 6—7 mm. longis, membranaceis, breviter acuminatis, basi rotundatis, rariter subacutis, nervis utrinque 4 vel 5; paniculis axillaribus, pedunculatis, 11—25 cm. longis, cymis laxissimis, paucifloris, bracteis inferioribus plerumque lanceolatis, circiter 1 cm. longis; floribus 7—8 mm. longis, tenuiter pedicellatis, calycis tubo cuneato, 3 mm. longo, glabro, lobis obscure puberulis; fructibus striatis, glabris, lobis accrescentibus, 1 cm. longis, 2 mm. latis.

A slender glabrous vine, or the inflorescences obscurely puberulent. Branches pale, terete or obscurely 4-angled, 2 to 4 mm. in diameter. Leaves opposite, 3-foliolate, their petioles 5 to 6 cm. long; leaflets membranaceous, oblong-ovate to elliptic-ovate, entire, 6 to 11 cm. long, 3 to 6 cm. wide, pale-olivaceous, somewhat shining, the base rounded, rarely subacute, the apex shortly acuminate; lateral nerves 4 or 5 on each side of the midrib, distinct as are the primary reticulations; petiolules of the lateral leaflets 5 to 7 mm. long, that of the terminal one 1 to 1.8 cm. in length. Inflorescences axillary, peduncled, paniculate, very lax, 11 to 25 cm. long, glabrous or very obscurely puberulent, the primary branches few, spreading, the lower ones up to 8 cm. long and usually subtended by lanceolate leaf-like bracts about 1 cm. in length; the upper branches without bracts, the bracteoles linear, 1 mm. long or less; cymes very lax, few-flowered, the pedicels of the individual flowers slender, up to 1 cm. in length. Flowers 8 to 9 mm. in diameter, 7 to 8 mm. long. Calyx-tube cuneate, 3 to 3.5 mm. long, glabrous, the lobes 5, oblong, acute, about 3 mm. long, 1 mm. wide, obscurely 3-nerved, very slightly puberulent. Corolla glabrous, white, the tube about 3.5 mm. long, the limb very obscurely 2-lipped, the 5 lobes subequal, ovate to elliptic-ovate, obtuse, about 3.5 mm. long, 2 to 2.5 mm. wide, their margins minutely ciliate. Filaments glabrous; anthers ellipsoid, 1.7 mm. long. Young fruits cuneate, glabrous, longitudinally striate, the accrescent lobes up to 1 cm. in length, about 2 mm. wide, 3-nerved.

British North Borneo, Batu Lima near Sandakan, *Ramos 1372* (type), *1679,* October and November, 1920. In damp forests along small streams and on damp ridges at low altitudes. This species is strongly characterized, among the five hitherto known representatives of this genus, by its very lax, few-flowered cymes and long-pedicelled flowers. It differs from *P. trifoliata* Merr.

(*P. ternata* Hall. f.) of Borneo, Palawan, and Mindanao not only in its very lax cymes and slenderly pedicelled flowers but also in being nearly glabrous, and in its thinner leaves. From *P. bambusetorum* King and Gamble, it differs not only in its inflorescence characters mentioned above, but also in its few-nerved leaflets and in its distinctly ribbed fruits.

Callicarpa Linnaeus.

Callicarpa involucrata sp. nov.

Frutex 3 m. altus, subglaber, partibus junioribus minute puberulis; foliis oppositis, glabris, chartaceis, oblongo-ellipticis, 20—35 cm. longis, basi acutis, apice breviter acuminatis, margine distanter undulato-dentatis, utrinque glandulis paucis disciformibus instructis, nervis utrinque 10—12, perspicuis; inflorescentiis caulinis, fasciculatis vel depauperato-cymosis, densis 2—3.5 cm. diametro, bracteis suborbicularibus vel obovatis 8—9 mm. longis deciduis instructis: floribus 4-meris, 7—9 mm. longis, pedicellatis, calyce brevissime 4-dentato, extus glandulis paucis disciformibus instructo.

A nearly glabrous shrub about 3 m. high, the younger branchlets sometimes minutely puberulent, the inflorescences sparingly pubescent. Branchlets obscurely 4-angled, the ultimate ones about 3 mm. in diameter. Leaves opposite, glabrous, chartaceous, subolivaceous, shining, the lower surface paler than the upper, oblong-elliptic, 20 to 35 cm. long, 8 to 14 cm. wide, subequally narrowed to the acute base and the shortly but sharply acuminate apex, the margins distantly undulate-dentate or quite entire in the lower part of the leaf, both surfaces conspicuously pitted-glandular, the lower surface with few, widely scattered, disk-like, sessile glands, 0.5 mm. in diameter or less, the upper surface with numerous similar, crowded glands at the very base; petioles about 1.5 to 2 cm. long. Inflorescences cauline, the flowers densely crowded, fascicled or depauperate-cymose, the inflorescences, in anthesis, sessile, 2 to 3.5 cm. in diameter, subtended by several suborbicular to obovate, 8 to 9 mm. long, subcoriaceous, deciduous bracts, the bracts rounded, externally supplied with numerous sessile discoid glands. Flowers white, 4-merous, their pedicels slightly pubescent, about 5 mm. long. Calyx 4 mm. long, cup-shaped, obscurely pubescent, the base subacute, the margins with 4 triangular obtuse teeth, about 0.5 mm. long and usually with few distant discoid glands near the rim. Corolla-tube 5 mm. long, glabrous, the lobes orbicular-ovate, rounded or obtuse, subequal, about 3 mm. in diameter. Stamens 4; anthers oblong, 3 mm. long, slightly exserted, obscurely waxy-glandular. Fruits ovoid, glabrous, 5 mm. in diameter, from two thirds to three quarters included in the cup-shaped, membranaceous, glabrous calyx, their pedicels up to 7 mm. long. The infructescences are distinctly and stoutly peduncled, the peduncle attaining a length of 2.5 cm.

British North Borneo, Batu Lima near Sandakan, *Ramos 1395* (type), *1523, 1927*. On forested slopes at low altitudes. A remarkable species remote from all hitherto described forms, but somewhat resembling *Callicarpa cauliflora* Merr. It is strongly characterized by its cauline, fascicled or depauperate-cymose, crowded flowers, the uniformly pitted upper and lower surfaces of its leaves, and the peculiar disciform glands widely scattered on the lower surface, crowded on the upper surface at the base of the leaf, and similar ones on the bracts (many) and on the calyces (few). The bracts are deciduous, but form a distinct involucre subtending the younger inflorescences.

Callicarpa erioclona Schauer in DC. Prodr. **11** (1847) 643; H. Lam, Verb. Malay. Archipel. (1919) 76.

British North Borneo, Kudat, *Agama 1049*, on dry slopes at low altitudes. Philippines (Luzon, Mindoro, Leyte, Negros, Mindanao), Java, Celebes, New Guinea, New Britain, and New Ireland.

SOLANACEAE.

Solanum Linnaeus.

Solanum epiphyticum Merr. in Philip. Journ. Sci. **7** (1912) Bot. 350.

British North Borneo, Sandakan, *Ramos 1463*, October, 1921. Epiphytic. This differs from the typical form which occurs throughout the Philippines in its slightly pubescent leaves.

GESNERIACEAE.

Didymocarpus Wallich.

Didymocarpus multinervia sp. nov. § *Kompsoboea.*

Species *D. kompsoboeae* affinis, differt foliis anguste oblongis, nervis utrinque 35—40, pedunculis paucifloris (haud 1-floris), floribus multo minoribus, circiter 1.7 cm. longis.

Stems woody, simple, erect or ascending, up to 13 cm. high, about 5 mm. in diameter, the upper parts densely rugose with petiolar scars. Leaves crowded, narrowly oblong to oblong-lanceolate, chartaceous, mostly 15 to 25 cm. long, 2.5 to 3.5 cm. wide, acuminate, the base distinctly inequilateral, obtuse to acute, the upper surface dark brownish-olivaceous, smooth or slightly bullate, sparingly ciliate with long rather weak hairs, conspicuously so on the midrib, the lower surface brown, ciliate on the midrib and lateral nerves, the margins conspicuously and rather coarsely crenate-dentate; lateral nerves 35 to 40 on each side of the midrib, spreading, the reticulations lax, indistinct; petioles about 1 cm. long, more or less ciliate. Inflorescences nearly as long as the leaves, the flowers rather few, cymosely arranged, white, about 1.7 cm. long, the bracts and bracteoles linear, 2.5 to 4 cm. long. Sepals free nearly to the base, narrowly lanceolate, 2 mm. long, slightly pubescent, the corolla about 1.7 cm. long, very slightly pubescent externally, the mouth somewhat oblique, the smaller lip 3-lobed, the larger one 2-lobed. Anthers 2 mm. long, their filaments glabrous, 5.5 mm. long, the staminodes 3 mm. in length, glabrous. Ovary and style very slightly pubescent. Capsules linear, glabrous, about 4 cm. long, 1 mm. in diameter. Peduncles and branches of the inflorescence sparingly ciliate with elongated hairs and pubescent with more numerous and much shorter ones.

British North Borneo, Sandakan, *Ramos 1145* (type), September, 1920, *Mrs. Clemens 9445,* October, 1915. On cliffs and large boulders in forests at low altitudes. A species allied to *Didymocarpus kompsoboea* C. B. Clarke, differing radically in the characters mentioned in the diagnosis. From *D. crenata* Baker, it differs in its evident stems; its much larger, longer and broader leaves; its smaller calyx with narrowly lanceolate, not ovate, lobes; and its distinctly smaller corolla.

Cyrtandra *Forster.*

Cyrtandra didissandriformis sp. nov. § *Whitia.*

Frutex erectus, haud ramosus, 40—65 cm. altus, pubescens caule 3—5 mm. diametro, dense ferrugineo- vel fulvo-villoso; foliis oppositis, paribus aequalibus, membranaceis, oblongis vel oblongo-ellipticis vel oblongo-oblanceolatis, 12—25 cm. longis, acutis vel subobtusis basi longe angustatis, cuneatis, margine crenato-dentatis, supra olivaceis, subasperis, plus minusve furfuraceo-hispidis, ad costam nervosque perspicue ciliato-villosis, subtus pallidioribus, villosis, nervis utrinque circiter 15 distinctis; floribus plerisque in axillis defoliatis, fasciculatis, 4 cm. longis, tenuiter pedicellatis, bracteolis obscuris vel 0; calyci parvo, profunde lobato; corollae tubo deorsum anguste cylindrico, supra ampliato, extus parcissime pubescente; fructibus cylindricis, usque ad 4.5 cm. longis, 3—4 mm. diametro, longe acuminatis, glabris, rugosis.

An erect, unbranched, ferruginous-pubescent shrub, 40 to 65 cm. high, the stems terete, 3 to 4.5 cm. in diameter, rather densely appressed ferruginous-villous, the internodes 1.5 to 6 cm. long. Leaves opposite, those of each pair equal in size and similar in shape, membranaceous, oblong to oblong-elliptic or oblong-oblanceolate, narrowed upward to the acute or subobtuse apex, and below to the cuneate base, 12 to 15 cm. long, 3.5 to 6.5 cm. wide, the margins crenate-dentate, the midrib and nerves conspicuously ciliate-villous, the upper surface somewhat hispid with short subappressed hairs from thickened bases, the lower surface conspicuously ciliate-villous on the midrib, nerves, and reticulations, brownish; lateral nerves about 15 on each side of the midrib, prominent on the lower surface; petioles 1 cm. long or less, densely ferruginous-villous. Inflorescences chiefly in the axils of fallen leaves on the lower part of the stem, the flowers solitary, in pairs, or fascicled, white, about 4 cm. long, their pedicels appressed-hirsute, slender, 1 to 2 cm. long, ebracteolate. Calyx hirsute, the lobes linear-lanceolate, acuminate, about 5 mm. long, free nearly or quite to the base. Corolla-tube slightly pubescent, the lower 1.5 to 2 cm. slender, cylindric, then expanded, the lobes orbicular-ovate, about 6 mm. long. Stamens 2, the anthers ovoid, 1.2 mm. long, connate, the filaments glabrous, ultimately much twisted and contorted; staminodes two, 4 mm. long, glabrous. Ovary and style somewhat pubescent. Fruits cylindric, elongated, glabrous, up to 4.5 cm. long, 3 to 4 mm. in diameter, slenderly acuminate, somewhat rugose when dry, the seeds minute, subellipsoid, 0.3 mm. in length.

British North Borneo, Batu Lima, near Sandakan, *Ramos 1458* (type), *1263, 1833*, October, 1920. In damp forests at low altitudes. A species well characterized by its somewhat hispid leaves, those of each pair being equal in size and similar in shape, but more especially by its slenderly pedicelled, solitary to fascicled flowers which are for the most part confined to the leafless nodes on the lower part of the stem, as well as by its slender, cylindric, elongated fruits. It seems to be remote from all other known species of the section, but clearly belongs in the section *Whitia.*

Cyrtandra longicarpa sp. nov. § *Whitia.*

Suffruticosa, erecta, haud ramosa, circiter 40 cm. alta; caulibus brevibus, rugosis, circiter 5 mm. diametro, leviter hirsutis; foliis confertis, membranaceis, olivaceis, nitidis, oblongo-obovatis, breviter acuminatis, deorsum angustatis, cuneatis vel decurrentibus, margine serratis, 20—27 cm. longis, utrinque glabris vel subtus ad costam hirsutis, nervis utrinque 12—14, distantibus, reticulis tenuibus, laxis; floribus axillaribus et in axillis defoliatis fasciculatis, tenuiter pedicellatis, circiter 2.5 cm. longis, bracteis submembranaceis ovatis subcaudato-acuminatis 1.8 cm. longis instructis, calycis profunde 5-fidis, lobis lanceolatis, glabris, 5—6 mm. longis; corollae tubo deorsum tenuiter cylindrico, supra ampliato, extus leviter pubescente; fructibus cylindraceis, elongatis, glabris, tenuiter acuminatis, 5—7 cm. longis, 2—3 mm. diametro.

An erect, unbranched shrub about 40 cm. high, the stems short, about 5 mm. in diameter, rugose when dry, the younger parts more or less hirsute. Leaves crowded at the apices of the stems, apparently alternate, the normal ones membranaceous, olivaceous, shining, oblong-obovate, shortly acuminate, narrowed below to the cuneate or long-decurrent base, the margins more or less serrate, 20 to 27 cm. long, 6 to 10 cm. wide, glabrous on both surfaces or the midrib beneath sparingly hirsute; lateral nerves 12 to 14 on each side of the midrib, prominent on the lower surface, the reticulations lax; petioles 2 to 4 cm. long, somewhat hirsute; intermingled with the normal leaves are found greatly reduced, apparently alternate, usually lanceolate, sessile ones, 1.5 to 3 cm. in length. Flowers 2.5 cm. long, fascicled, chiefly in the lower axils, their pedicels slender, glabrous or nearly so, up to 2 cm. in length, subtended by submembranaceous, ovate, subcaudate-acuminate, nearly glabrous bracts up to 1.8 cm. in length. Calyces divided nearly or quite to the base, the lobes lanceolate, glabrous, 5 to 6 mm. long. Corolla sparingly pubescent externally, the tube narrow and cylindric for the lower 10 mm. then expanded, the lobes subequal, orbicular-ovate, 6 mm. long. The filaments erect, 8 mm. long; anthers oblong-ovate, 3 mm. long, slightly cohering by the acuminate tips; staminodes 5 mm. long, glabrous. Disk cylindric, truncate, glabrous, 2.5 mm. long. Ovary and style obscurely pubescent, the stigma 2-lobed, the lobes elliptic, 1 mm. in length. Fruits narrow, cylindric, elongated, 5 to 7 cm. long, 2 to 3 mm. in diameter, glabrous, rugose, slenderly acuminate, usually more or less curved.

British North Borneo, Batu Lima, near Sandakan, *Ramos 1359* (type), *1265*, October, 1920. In damp forests along small streets at low altitudes. A species strongly characterized by its erect, unbranched habit; its short stems; its crowded, apparently alternate and very dissimilar leaves; as well as by its slenderly pedicelled, fascicled flowers which occur both in the axils of leaves and in the axils of fallen leaves; and furthermore by its slender, elongated, usually curved, glabrous, slenderly acuminate fruits which attain a length of from 5 to 7 cm. Like *C. didissandriformis*, it strongly resembles certain species of *Didissandra*, but is clearly a *Cyrtandra* and by definition falls in the section *Whitia*. It apparently is not closely allied to any previously described species of this section and differs radically from the species mentioned above in its densely crowded, apparently alternate and dissimilar leaves, which are furthermore glabrous or nearly so.

Cyrtandra simplex sp. nov. § *Campanulaceae*.

Frutex erectus, 40—50 cm. altus, haud ramosus, partibus junioribus dense ferrugineo-villosis; caulibus teretibus, circiter 3 mm. diametro, vetustioribus glabris; foliis in paribus, aequalibus vel subaequalibus, membranaceis, oblongis vel oblongo-ellipticis, 8—14 cm. longis, supra olivaceis, glabris, subtus pallidis, ad costam nervosque plus minusve pubescentibus, apice breviter acuminatis, basi acutis, margine distanter crenatis vel undulato-crenatis, nervis utrinque circiter 6, tenuibus, reticulis laxis obscuris; floribus 5 cm. longis, in axillis inferioribus defoliatis, pedunculis solitariis vel fasciculatis, plerumque bifloris; calyci circiter 1.5 cm. longo, cylindraceo, sulcato, persistente, lobis ovato-lanceolatis, acuminatis, 4 mm. longis; corollae tubo extus villoso, deorsum tenuiter cylindraceo, sursum ampliato.

An erect, unbranched shrub 40 to 50 cm. high, the younger parts of the stems densely ferruginous-villous. Stems terete, smooth, about 3 mm. in diameter, grayish or brownish, the older parts glabrous or nearly so, the internodes 1.5 to 7 cm. long. Leaves opposite, in equal or subequal pairs, membranaceous, oblong to oblong-elliptic, 8 to 14 cm. long, 3.5 to 6 cm. wide, the apex rather shortly and stoutly acuminate, the base acute, margins distantly crenate to undulate-crenate, the upper surface glabrous, olivaceous, the lower surface pale and rather conspicuously pubescent on the midrib and lateral nerves; nerves about 6 on each side of the midrib, slender, curved-ascending, the reticulations lax, indistinct; petioles slender, more or less pubescent, 1 to 2.5 cm long. Inflorescences from the axils of fallen leaves and confined to the basal part of the stems, chiefly 2- or 3-flowered, the peduncules solitary or in pairs, in anthesis about 5 mm. long, the lower ones in fruit up to 2 cm. in length. Flowers white, 5 cm. long, subsessile or shortly pedicelled in flower, the pedicels in fruit attaining a length of 1.5 cm., somewhat pubescent, the bracts subtending the flowers elliptic-ovate to narrowly lanceolate, up to 12 mm. long., Calyx about 1.5 cm. long, cylindric, somewhat pubescent, more or less angled, equally 5-lobed, the lobes ovate-lanceolate, acuminate, 4 mm. long. Corolla silky-villous outside, the tube in the lower 1.5 to 2 cm. slender, cylindric, then rather abruptly enlarged, the enlarged portion equalling the slender portion in length. Disk cylindric, glabrous, crenate 2 mm. long. Ovary and style glabrous, style 2.5 cm. long; stigma 3 mm. wide, 1.5 mm. long, entire. Fruits oblong, glabrous, about 12 mm. in length, included in the persistent but not accrescent calyx.

British North Borneo, Batu Lima, near Sandakan, *Ramos 1234* (type), *1577*, October and November, 1920. In damp forests at low altitudes. A species in many respects resembling *Cyrtandra basiflora* C. B. Clarke of the section *Dissimiles*, but at once distinguished, among other characters, by its strictly opposite leaves, those of each pair being equal or subequal in size and similar in shape. It belongs in the subgenus *Macrocyathus*, and on account of its persistent calyces can scarcely be placed in any other defined section of the genus than the *Campanulaceae*. A somewhat similar form is represented by *Ramos 1676, 1708*, from the same locality. Of these only fruiting specimens are known. Among other characters, these specimens differ from the species described above in their thicker, sharply toothed, shortly petioled or subsessile leaves, and much shorter infructescences, the fruits being sessile or subsessile in groups of from 2 to 4 at the apices of the short peduncles, the infructescences being chiefly confined to the base of the erect, short, simple trunks, as in *C. basiflora* C. B. Clarke.

ACANTHACEAE.

Hygrophila *R. Brown.*

Hygrophila obovata Nees in Wall. Pl. As. Rar. **3** (1832) 81; DC. Prodr. **11** (1857) 91.

British North Borneo, Sandakan, *Ramos 1215*. In damp open places at low altitudes. India to Malaya.

Pseuderanthemum *Radlkofer.*

Pseuderanthemum album (Roxb.) comb. nov.

Justicia alba Roxb. Fl. Ind. **1** (1820) 117.

Eranthemum album Nees in DC. Prodr. **11** (1847) 455; C. B. Clarke in Journ. As. Soc. Bengal **74**, part 2, (1907) 677 (Mat. Fl. Malay. Penin. **4**: 887).

British North Borneo, Sapagaya River valley and Batu Lima, near Sandakan, *Wood 445,* apparently typical, *Ramos 1240* with thicker leaves than the typical form. Chittagong, Pegu, Malay Peninsula, Nicobar Islands, Andaman Islands and Java.

Justicia *Linnaeus.*

Justicia henicophylla C. B. Clarke in Journ. As. Soc. Bengal **74**, part 2, (1907) 685 (Mat. Fl. Malay. Penin. **4**: 895).

British North Borneo, Batu Lima, near Sandakan, *Ramos 1243.* In forests at low altitudes. Malay Peninsula.

Staurogyne *Wallich.*

Staurogyne subglabra C. B. Clarke in Journ. As. Soc. Bengal **74**, part 2, (1907) 640 (Mat. Fl. Malay. Penin. **4**: 850).

British North Borneo, Kiau, Mount Kinabalu, and Mount Kalawat, *Mrs. Clemens 10106, 11149,* November and December, 1915. This species was previously known only from the Malay Peninsula, the Bornean specimens agreeing entirely with the original description and with Perak material.

Staurogyne arcuata C. B. Clarke l. c.

British North Borneo, Batu Lima and Sibuga, near Sandakan, *Ramos 1358, 1862,* October and December, 1920. In damp forests at low altitudes, agreeing with the original description and with Perak material in all essentials. Malay Peninsula.

RUBIACEAE.

Neonauclea *Merrill.*

Neonauclea longipedunculata sp. nov.

Arbor glabra, circiter 8 m. alta, ramulis incrassatis, pallide brunneis; foliis magnis, subcoriaceis, oblongis vel ellipticis, 30—40 cm. longis, 11—20 cm. latis, nitidis, brevissime acuminatis, basi rotundatis, nervis utrinque circiter 15; stipulis oblongis, obtusis, coriaceis, 2 cm. longis, circiter 1 cm. latis; pedunculis ternatis vel solitariis, 10—13 cm. longis, sub apice bibracteatis, capitulis sub fructu 3—4 cm. diametro; calyci 5-lobat, loborum partibus deciduis 3—4 mm. longis, lineari-filiformibus haud clavatis, apice nigris; capsulis circiter 1 cm. longis.

A glabrous tree about 8 m. high, the branchlets thickened, pale brownish, the internodes 4 to 12 cm. long, often swollen and inhabited by colonies of ants. Leaves large, 30 to 40 cm. long, 11 to 20 cm. wide, oblong to elliptic, subcoriaceous, the upper surface greenish-olivaceous, shining, the lower somewhat paler, apex shortly and bluntly acuminate, base rounded; lateral nerves about 15 on each side of the midrib, prominent, the reticulations distinct; petioles 2 to 3 cm. long; stipules oblong, obtuse, coriaceous, brown, about 2 cm. long and 1 cm. wide. Heads solitary and ternate, in fruit globose, 3 to 4 cm. in diameter, the peduncles 10 to 13 cm. long, somewhat thickened upward and sharply 4-angled, 2-bracteate near the apex, the bracts deciduous. Capsules very numerous about 1 cm. long, narrowed and globose below, the apical part appressed-pubescent. Calyx-lobes 5, the deciduous parts linear-filiform, black, not clavate, 3 to 4 mm. long, the persistent basal parts thickened, ovate, pale, hard, shining, about 1 mm. long. Seeds numerous, linear, 4 to 5 mm. long, including the wings.

British North Borneo, Batu Lima, near Sandakan, *Agama 1034*, November 2, 1920. On steep, damp forested slopes, altitude about 70 m. A species well characterized by its very large leaves and its unusually long peduncles. It is probably most closely allied to *Neonauclea cyrtopoda* Merr. and *N. peduncularis* Merr.

Hedyotis *Linnaeus.*

Hedyotis fissistipula sp. nov.

Suffruticosa, erecta, usque ad 60 cm. alta, haud ramosa, caulibus obscure 4-angulatis, sulcatis; foliis oblongo-ovatis vel oblongo-lanceolatis, tenuiter acuminatis, basi acutis, 9—13 cm. longis, supra glabris, laevibus, subtus asperis, ad costam nervosque breviter hirsutis, nervis utrinque circiter 7, perspicuis, adscendentibus; stipulis circiter 10 mm. longis latisque, leviter hirsutis, pectinatis, segmentis numerosis (circiter 35), 3—4 mm. longis; inflorescentiis axillaribus, sessilibus, capitato-glomeratis, circiter 1 cm. diametro, multifloris, bracteis brevis foliaceis sublanceolatis circiter 1.4 cm. longis bracteolisque numerosis minoribus instructis; floribus confertis, 4-meris, 5 mm. longis, calycis segmentis lanceolatis, 2 mm. longis, haud accrescentibus; capsulis subellipsoideis, glabris, 2 mm. longis, 2-locellatis.

An erect, suffrutescent, unbranched shrub up to 60 cm. high, the stems about 4 mm. in diameter, obscurely 4-angled, the younger parts distinctly sulcate, more or less hispid-hirsute. Leaves oblong-ovate to oblong-lanceolate, chartaceous to subcoriaceous, brittle when dry, greenish or greenish-olivaceous, somewhat shining, 9 to 13 cm. long, 3 to 4.5 cm. wide, the upper surface glabrous, nearly smooth or the midrib more or less hispid-hirsute, the lower surface hispid-hirsute on the midrib and lateral nerves, the indumentum short and stiff, the apex slenderly and sharply acuminate, the base acute to somewhat decurrent and rather distinctly 3-nerved; lateral nerves, including the basal pair, about 7, sharply ascending, slightly curved or nearly straight, anastomosing close to the margin, prominent on the lower surface; petioles 1.5 to 2 cm. long, more or less hispid: stipules about 10 mm. long and wide, somewhat pubescent, pectinate, the segments usually about 35, linear, 3 to 4 mm. long, the ultimate ones narrower and usually gland-tipped. Inflorescences axillary, sessile, capitate-glomerate, about 1 cm. in diameter, many-flowered, subtended by usually 2 foliaceous lanceolate acuminate bracts about 1.4 cm. long and 5 mm. wide, and supplied with numerous shorter bracteoles, the ultimate ones linear, acuminate, 3 to 4 mm. long. Flowers white, crowded, shortly pedicelled, 4-merous. Calyx-lobes lanceolate, acuminate 2 mm. long, slightly pubescent. Corolla-tube 2.5 mm. long, the lobes oblong-ovate 1.2 mm. long; slightly hirsute at their tips. Capsules subellipsoid, 2 mm. long, glabrous, 2-celled, crowned by the non-accrescent calyx-lobes.

British North Borneo, Batu Lima, near Sandakan, *Ramos 1551* (type), *1154*, September and November, 1920. In damp forests and along streams in rather dry forests at low altitudes. A species belonging in the group with *Hedyotis macrophylla* Wall., and in general resembling the Philippine *H. scaberrima* Merr., differing from both of these and from other allied forms in its very numerously laciniate stipules.

Hedyotis platyphylla sp. nov.

Suffrutex erectus, ramulis sulcatis et leviter angulatis: foliis chartaceis, oblongis vel oblongo-ovatis, usque ad 20 cm. longis, basi acutis vel decurrento-acuminatis, apice perspicue acuminatis, nervis utrinque 7, subtus valde perspicuis, adscendentibus; stipulis laciniatis, circiter 1 cm. longis; inflorescentiis dense fasciculatis, axillaribus, fasciculis circiter 1 cm. diametro; floribus parvis, circiter 4.5 mm. longis, 4-meris, calycis lobis lanceolatis, acuminatis, 1.5 mm. longis; capsulis ellipsoideis, circiter 2 mm. longis.

An erect, glabrous, suffrutescent plant about 70 cm. high, the branches sulcate and somewhat angled. Leaves chartaceous, oblong to oblong-ovate, 14 to 20 cm. long, 6 to 8 cm. wide, the base acute or decurrent-acuminate, the apex distinctly acuminate, when dry olivaceous slightly shining; lateral nerves about 7 on each side of the midrib, very prominent on the lower surface, ascending; petioles 2 to 3.5 cm. long; stipules about 1 cm. long, divided into 7 to 9, narrow, linear lobes. Flowers white, in dense, axillary, subglobose fascicles about 1 cm. in diameter, the pedicels up to 2 mm. in length. Calyx-tube 1 to 1.2 mm. long, the lobes 4, lanceolate, acuminate, 1.5 mm. long. Corolla 3.5 mm. long, the lobes oblong, obtuse, 1.2 mm. long, the tube villous inside: subtending bracteoles numerous, linear-lanceolate up to 3 mm. in length. Capsules ellipsoid, about 2 mm. long, crowned by the erect calyx teeth.

British North Borneo, Bettotan watershed, *D. D. Wood* (type), June 7, 1919, in level forested country, altitude about 20 metres; Batu Lima, near Sandakan, *Ramos 1332, 1678*, October, 1920. A species belonging in the group with *Hedyotis congesta* R. Br. but well characterized by its unusually large leaves.

Urophyllum *Wallich*

Urophyllum borneense sp. nov.

Frutex circiter 5 m. altus, ramulis et subtus foliis ad costam nervosque adpresse pubescentibus; foliis oblongo-ellipticis vel oblongo-lanceolatis, chartaceis, usque ad 20 cm. longis, utrinque angustatis, apice tenuiter acuminatis, basi acutis, nervis utrinque circiter 15, perspicuis; stipulis lanceolatis, 10—12 mm. longis; fructibus numerosis, fasciculatis, subglobosis, glabris, circiter 4 mm. diametro, pedicellis tenuibus circiter 1 cm. longis.

A shrub about 5 m. high, the branchlets and the lower surface of the leaves on the midrib, nerves, and reticulations appressed-pubescent with short hairs. Branches slender, terete, glabrous, pale brownish, the branchlets somewhat compressed or sulcate. Leaves chartaceous, oblong-elliptic to oblong-lanceolate, 13 to 20 cm. long, 4 to 6 cm. wide, pale when dry, subequally narrowed to the acute base and to the slenderly acuminate apex; lateral nerves about 15 on each side of the midrib, rather prominent as are the primary reticulations; stipules lanceolate, 10 to 12 mm. long; petioles 1.5 to 2 cm. long, slightly pubescent. Fruits numerous, black when dry, fascicled at the nodes, up to 50 at each node, in the uppermost fascicles sometimes as few as 6, dark brown or black when dry, subglobose, about 4 mm. in diameter, glabrous except for the slightly pubescent, short, persistent calyx-teeth; pedicels slender, slightly pubescent, about 1 cm. long.

British North Borneo, Batu Lima, near Sandakan, *Wood 948*, October 14, 1920. In forests at low altitudes. A species strongly characterized by its very numerous, slenderly pedicelled fruits which are crowded at the nodes in fascicles 2.5 to 3 cm. in diameter.

Urophyllum suberosum sp. nov.

Frutex circiter 3 m. altus; ramulis et subtus foliis plus minusve pubescentibus; foliis chartaceis, oblongo-lanceolatis, tenuiter acuminatis, basi acutis vel obtusis, usque ad 35 cm. longis, nervis utrinque 20—25 subtus perspicuis; floribus caulinis, 5- vel 6- meris, fasciculatis, sessilibus, magnis, bracteatis, bracteis ovatis 8—10 mm. longis, ovario 11-loculare; styli ramis patulis, carnosis, 9—11 mm. longis; fructibus turbinatis, circiter 2 cm. diametro.

A shrub about 3 m. high, the trunk about 3 cm. in diameter, covered with a pale-gray, thick, corky, deeply ridged bark, the flowers unusually large for the genus, borne in sessile fascicles on the trunk. Branches and branchlets terete or subterete, these, the petioles, and the leaves with a dirty-brown pubescence. Leaves oblong-lanceolate, chartaceous, subolivaceous, 27 to 35 cm. long, 7 to 8 cm. wide, slenderly acuminate, base acute to obtuse or even somewhat rounded, the upper surface glabrous except the midrib, the lower surface pubescent; lateral nerves 20 to 25 on each side of the midrib, prominent, curved-anastomosing; petioles pubescent, about 2 cm. long; stipules lanceolate, pubescent, about as long as the petioles. Flowers white, sessile, large, 5- or 6-merous, fascicled on the trunk, the subtending bracts ovate, slightly pubescent externally, densely appressed-villous within, 8 to 10 mm. long, acute. Corolla-tube cylindric, 10 to 12 mm. long, 8 to 10 mm. in diameter, externally appressed-pubescent, inside glabrous except at the densely ciliate-bearded throat, the lobes oblong-lanceolate, acuminate, about 9 mm. long, glabrous inside. Calyx somewhat campanulate, about 10 mm. long and 12 mm. in diameter, the lobes broadly ovate, about 6 mm. long, inside densely appressed-villous. Ovary 11-celled; style sparingly hirsute, 5 mm. long, the arms fleshy, spreading, 9 to 11 mm. long, as many as the ovary-cells. Fruit turbinate, 2 cm. in diameter, apex depressed, glabrous, rugose, the persistent calyx pubescent, the lobes spreading.

British North Borneo, Batu Lima, near Sandakan, *Ramos 1472* (type), October, 1920; Labuk and Sugut Districts, Sumawang river, *Agama 663*, September 24, 1918, in flat country at low altitudes. This species is remarkable for its thick, corky, deeply ridged, pale bark, and its cauline, sessile, unusually large flowers, and its turbinate fruits, the spreading persistent calyx 2 cm. in diameter, the fruit somewhat projecting and depressed at the apex.

Borreria *G. F. W. Meyer.*

Borreria hispida (Linn.) K. Schum. in Engl. and Prantl, Nat. Pflanzenfam. 4, part 4, (1891) 44.

Spermacoce hispida Linn. Sp. Pl. (1753) 102.

British North Borneo, Sandakan, *Ramos 1786, 1760, 1767*. In open waste places at low altitudes. India to China and Malaya.

Borreria ocymoides (Burm. f.) DC. Prodr. 4 (1830) 544.
Spermacoce ocymoides Burm. f. Fl. Ind. (1768) 34, *t. 13. f. 1.*

British North Borneo, Sandakan, *Ramos 1768* Along roads at low altitudes. Tropical Africa, Asia, and Malaya.

Psychotria *Linnaeus.*

Psychotria woodii sp. nov.

Frutex erectus, circiter 2 m. altus, glaber; foliis chartaceis, oblongis vel oblongo-oblanceolatis, usque ad 30 cm. longis, acute acuminatis, basi cuneatis, in siccitate fragilibus, nitidis, supra castaneis, subtus brunneis, nervis utrinque circiter 18 perspicuis;

infructescentiis paniculatis, 6—12 cm. longis, fructibus ellipsoideis circiter 1 cm. longis longitudinaliter sulcatis, seminibus plano-convexis dorso perspicue 5-sulcato, albumine laeve.

A glabrous shrub about 2 m. high, the branchlets nearly black when dry. Leaves oblong to oblong-oblanceolate, chartaceous, 15 to 30 cm. long, 4.5 to 10 cm. wide, usually narrowed upward to the slenderly and sharply acuminate apex, the base gradually narrowed, cuneate, when dry usually castaneous and prominently shining on both surfaces, the lower surface somewhat paler than the upper; lateral nerves about 18 on each side of the midrib, prominent, anastomosing directly with the slightly arched marginal nerves; petioles 2 to 4 cm. long; stipules lanceolate, acuminate, deciduous, about 8 mm. long. Infructescences paniculate, 6 to 12 cm. long, shortly peduncled, sometimes branched from the base, the primary branches few, the lower ones spreading. Fruits ellipsoid, red when fresh, black or dark-brown when dry, glabrous, longitudinally sulcate, about 1 cm. long; seeds plano-convex, the back conspicuously 5-sulcate, the albumen uniform, not at all ruminate.

British North Borneo, Batu Lima and Sandakan, *Ramos 1429* (type) *1198, Wood 1101.* All collected in October, 1920, from damp forests at low altitudes. The same species is also represented by *Mrs. Clemens 11180* from Mt. Kalawat, December, 1915. A species well characterized by its being entirely glabrous throughout, as well as by its elongated, usually slenderly acuminate leaves which are typically castaneous when dry.

Psychotria grandistipula sp. nov.

Frutex erectus, usque ad 1 m. altus, ramulis et inflorescentiis et foliis utrinque ad costam nervosque perspicue rubiginoso-villosis; foliis chartaceis, ellipticis vel oblongo-ovatis vel oblongo-obovatis, 13—27 cm. longis, acuminatis, basi acutis, in siccitate plerumque rubiginosis, nervis utrinque circiter 12, perspicuis; stipulis ovatis, 1.5—2 cm. longis, 1—1.5 cm. latis, obtusis, deciduis; inflorescentiis paniculatis, brevissime pedunculatis, circiter 5 cm. longis, 7—9 cm. latis; fructibus glabris, ellipsoideis vel oblongo-ellipsoideis, 9 mm. longis, longitudinaliter sulcatis; seminibus plano-convexis, dorso perspicue 3- vel 4-sulcato, albumine aequabile.

An erect shrub up to 1 m. high, the branchlets, petioles, inflorescences, and leaves conspicuously rubiginous-villous. Leaves chartaceous, elliptic to oblong-ovate or oblong-obovate, 13 to 27 cm. long, 8 to 13 cm. wide, the apex distinctly acuminate, base acute, when dry usually rubiginous or the upper surface olivaceous, somewhat shining on both surfaces and conspicuously ciliate with more or less crisped hairs on the midribs, nerves, and reticulations on both surfaces, and with scattered similar hairs on the parenchyma, the upper surface ultimately nearly glabrous; lateral nerves about 12 on each side of the midrib, prominent on the lower surface, arched-anastomosing close to the margin, the reticulations lax, distinct; petioles rubiginous-villous, 2 to 3 cm. long; stipules broadly ovate, chartaceous, villous, deciduous, 1.5 to 2 cm. long, 1 to 1.5 cm. wide, obtuse, narrowed below. Infructescences terminal, shortly peduncled, about 5 cm. long, 7 to 9 cm. wide, usually with 3 primary branches, rather lax. Mature fruits red when fresh, dark-brown when dry, glabrous, ellipsoid to oblong-ellipsoid, 9 mm. long, longitudinally sulcate; seeds plano-convex, the back conspicuously 3- or 4-sulcate, the albumin uniform, not at all ruminate.

British North Borneo, Batu Lima, near Sandakan, *Ramos 1194* (type), *1365, 1370, 1426, 1576.* On forested slopes at low altitudes. A species in general appearance resembling *Psychotria stipulosa* Wall., but differing totally in its indumentum. The unusually large stipules are characteristic.

Xanthophytum *Blume.*

Xanthophytum longipedunculatum sp. nov.

Frutex usque ad 60 cm. altus, plus minusve ferrugineo-pubescens; foliis membranaceis, oblongis vel oblongo-oblanceolatis, 13—25 cm. longis, acuminatis, basi acutis vel attenuatis, supra atro-olivaceis, glabris vel ad costam leviter hirsutis, subtus subferrugineis, adpresse-ferrugineo-ciliatis, nervis utrinque circiter 20, perspicuis; paniculis 3—5 cm. longis, longe tenuiterque pedunculatis, pedunculo 5—15 cm. longo; floribus 4—4.5 mm. longis, fructibus glabris, 2—3 mm. diametro.

An erect shrub less than 1 m. high, the branchlets, inflorescences, and the lower surface of the leaves more or less ferruginous-pubescent with appressed hairs, the indumentum on very young leaves often cupreous and shining. Leaves membranaceous, oblong to oblong-oblanceolate, 13 to 25 cm. long, 4 to 6 cm. wide, narrowed upward to the acuminate apex and below to the attenuate base, the upper surface olivaceous, ultimately glabrous, when young with scattered ciliate hairs along the midrib and nerves, the lower surface paler than the upper, the midrib and nerves rather densely appressed-pubescent and with numerous similar hairs on the surface; lateral nerves about 20 on each side of the midrib, prominent on the lower surface, curved, anastomosing close to the margin, the reticulations obscure; petioles about 2 cm. long; stipules lanceolate, caudate-acuminate, pubescent, about 1.5 cm. long. Inflorescences axillary, paniculate, long- and slenderly peduncled, the panicles 3 to 5 cm. long, the branches spreading, the lower ones up to 2 cm. long, the peduncles 5 to 15 cm. long. Flowers white, 4 to 4.5 mm. long, 5-merous, the calyx cup-shaped, 1.5 to 2 mm. long, very slightly pubescent, the lobes broadly ovate, 0.5 mm. in length. Corolla 3 mm. long, the lobes oblong-ovate, acute, 1 mm. in length, the throat villous inside. Fruits glabrous about 15 mm. long, 2.5 mm. wide, their pedicels up to 3 mm. in length, the bracts subtending the branches narrowly lanceolate, about 2 mm. long.

British North Borneo, Batu Lima, near Sandakan, *Ramos 1926* (type), *1271*, November, 1920. In damp forests along small streams at low altitudes; Kiau, *Mrs. Clemens 10189*, November, 1915. The alliance of this species is manifestly with *Xanthophytum fructiculosum* Blume, from which it is at once distinguished by its long and slenderly peduncled inflorescences.

CUCURBITACEAE.

Melothria *Linnaeus.*

Melothria diversifolia sp. nov. § *Eumelothria.*

Herba scandens, monoica; foliis valde diversiformibus, majoribus ovatis vel oblongo-ovatis, usque ad 20 cm. longis, ad 11 cm. latis, minoribus oblongis vel lanceolatis, 5—10 cm. longis, 1.5—3 cm. latis, omnibus chartaceis vel subcoriaceis, acute acuminatis, basi truncato-hastatis, angulis plerumque acutis, margine distanter dentatis, supra olivaceis, asperrimis, subtus glabris, sublaevibus; floribus ♀ solitariis, tenuiter pedunculatis, 1 cm. longis; ♂ plerumque in ramulis junioribus laxissime corymbosis; fructibus globosis, glabris, 1 cm. diametro; seminibus compressis, subellipsoideis, 6 mm. longis, leviter rugosis, vix marginatis.

A herbaceous, monoecious vine, the stems terete, 3 to 3.5 mm. in diameter, the younger branchlets slender, 1 mm. in diameter or less. Leaves chartaceous to subcoriaceous, mostly dark-green when dry, the upper surface very scabrous, the lower glabrous and nearly smooth, diverse in shape and in size, the larger ones ovate to oblong-ovate, 13 to 20 cm. long, 7 to 11 cm. wide, the smaller ones oblong to lanceolate, 7 to 9 cm. long, 2 to 4 cm. wide, all slenderly and sharply acuminate, their bases truncate-hastate, the angles chiefly acute, the margins distantly dentate; lateral nerves, including the basal ones, about 6 on each side of the midrib, prominent on the lower surface, the reticulations lax; petioles 1 to 2.5 cm. long; tendrils simple, glabrous, up to 15 cm. in length, slender. Flowers yellow, the pistillate ones solitary, slenderly peduncled, about 1 cm. long, the peduncles up to 2.5 cm. in length: ovary ovoid, 3 mm. long, the perianth tube short, broad: calyx segments lanceolate, acuminate, 1.5 mm. long: petals elliptic-ovate, acuminate, 5 mm. long: staminodes 1.2 mm. in length: stigma 3-lobed, the lobes deeply cleft, 2 mm. long. Staminate flowers similar to the pistillate ones, for the most part laxly corymbose on the younger branchlets, the inflorescences up to 10 cm. in length: stamens free, their anthers 1.5 mm. long. Fruits globose, red when fresh, glabrous, smooth, about 1 cm. in diameter, the seeds compressed, subellipsoid, about 6 mm. long, slightly rugose, scarcely marginate.

British North Borneo, Batu Lima and Sebuga, near Sandakan, *Ramos 1896* (type), *1175*, *1210*, October and December, 1920. In thickets at low altitudes. A species well characterized by its ample, elongated, very diverse leaves which are truncate-hastate at the base, the basal angles being chiefly acute, as well as by its lax, corymbose, staminate inflorescences.

Momordica Linnaeus.

Momordica acuminata sp. nov.

Herba scandens, dioica, inflorescentiis exceptis glabra; foliis chartaceis, oblongo-ovatis, brunneo-olivaceis, utrinque nitidis, integris, 9—11 cm. longis, tenuiter acute acuminatis, basi cordatis, subtus perspicue reticulatis, petiolo glanduloso; floribus ♂ solitariis, magnis, bractea magna ovata, acuta, basi cordata, intus scaberula.

A nearly glabrous, herbaceous, dioecious vine, the ultimate branchlets 2 mm. in diameter or less, sulcate, pale-brownish. Leaves chartaceous, shining on both surfaces, brownish-olivaceous, oblong-ovate, entire, 9 to 11 cm. long, 4.5 to 6 cm. wide, the apex slenderly and sharply acuminate, the base cordate, the sinus rather broad, the basal lobes rounded, the basal margins usually with with 1 or 2 prominent glands; lateral nerves including the basal pair 4 to 6 on each side of the midrib, prominent, arched-anastomosing, the primary reticulations lax, distinct; petioles about 2 cm. long, distinct, glandular in the upper part, the glands sessile, up to 1 mm. in diameter; tendrils slender, up to 6 cm. long. Staminate flowers axillary, solitary or in pairs, the pedicels up to 3.5 cm. long, the subtending bracts inclosing the buds broadly ovate when spread, acute or obtuse, the base prominently cordate, up to 3.5 cm. long, scabrid on both surfaces. Calyx-tube broad, nearly flat, 10 to 12 mm. in diameter, the lobes oblong-ovate, sharply acuminate, scaberulous, about 1.5 cm. long, 8.5 mm. wide. Corolla-lobes ovate, the larger ones up to 5.5 cm. long, acute or somewhat acuminate, reticulate, sparingly pubescent outside, especially in the lower part. Stamens 3, 6 to 8 mm. long, one entire, two 2-lobed, the connectives more or less papillose, each stamen or lobe with a conspicuous, ascending, lateral, papillate-villous, lanceolate appendage, about 4 mm. long, from a broad base.

British North Borneo, Batu Lima, near Sandakan, *Ramos 1303*, October, 1920. In forests at low altitudes. The petals are described as white, the central portion nearly black. The species is allied to *Momordica denticulata* Miq., from which it is distinguished by its thinner, smaller, entire leaves, its glandular petioles, its acuminate sepals, and its larger flowers. A very similar species is represented by *Native Collector 2812* (Bur. Sci.), *Moulton 64*, from Selungo, Upper Baram, Sarawak, collected on November 22, 1914, but which differs in its truncately rounded, not cordate leaves, and apparently smaller flowers and bracts. The specimens are imperfect.

A Botanical Excursion to Northern Sumatra.

BY H. N. RIDLEY, C.M.G., F.R.S.

The flora of Sumatra is at present still very little known, so that the account of even a short excursion especially in the quite unexplored northern part of the island is a contribution to the history of its flora. In my paper on Messrs. Robinson's and Kloss' collections on Korinchi Peak (*Journ. Fed. Malay States Museums*, Vol. viii, p. 9), I gave a resumé of the collections which had been made in Sumatra and which were chiefly in the southern half of the island. As the only part of Sumatra I had myself collected in was the Siak district in the south, I was anxious to visit other parts of Sumatra before my Eastern travels came to an end, and meeting Mr. Gallagher who was Manager of the United Malay Association Rubber Company, in Singapore, he very kindly made arrangements for me to get to Berastagi and to reside for some days in the bungalow belonging to the Company. I left Penang therefore on February 4th, 1921, by steamer and arrived at Belawan, the port for Medan the next day. I had an excellent boy, Rau, procured for me by Mr. Kloss, and a plant collector, Kiah, supplied by Mr. Burkill. Arrived at Belawan at sunrise I had to interview the Customs Officials, two very young men who knew properly neither English nor Malay, about my collecting presses and paper which I believe should have come into the country free, as they did when I travelled in Java; but after a little dispute I had to pay nine guilders duties for them.

The train from Belawan to Medan was very slow and late in arriving. We passed through low-lying cultivated ground with little of the original vegetation left, except in the tidal swamps. The mangrove and tidal swamp flora appeared to resemble closely that of the west coast of the Malay Peninsula. I noted *Oroxylum indicum* and *Excoecaria agallocha*, besides the usual species of *Rhizophora* and *Bruguiera*, and I saw a young plant of *Corypha elata* Roxb., which occurs in the Peninsula as far South as Alor Star only.

Medan is a small but picturesque, well laid out little town with far the best and cheapest Hotels in the East. The officials of the company were exceedingly kind and helpful: Mr. Henderson arranged for a motor car belonging to the Company to convey me with the boys and baggage to Berastagi and we started at about 3 o'clock in the afternoon. The first part of the journey lay for a long time through low, flat cultivated ground. The road was fringed on both sides for a considerable distance with a belt of young teak trees planted very close together to supply poles and posts. Eventually we came to the mountain ranges clad with forest. As the road was bad and required widening in many parts of the hilly districts, the car had to stop at intervals and we took advantage of this to jump out and collect what we could on the roadside. The pretty pink balsam *Impatiens platypetala* was abundant all the way up wherever it was damp enough for it.

The forest on the mountains here is by no means as dense nor are the trees as lofty as in the mountains of the Malay Peninsula, but this is perhaps due to extensive cutting of timber to supply the lowland districts. Eventually we arrived on the great Karu plateau and at the bungalow, where we were kindly received by the other occupants, at half past five.

The plateau of very large extent does not at first appear a good botanical ground, as it is mainly covered with lalang and bracken, the original forests with which it was probably formerly covered having doubtless been cleared for cultivation by the Battaks, who inhabit this region; but patches of forest occur near their villages and in the valleys, and the further hills, many within an easy walk, are clad with a dense forest vegetation at the summits. Among the lalang even grew some plants of interest: *Arundina speciosa*, *Rhynchospora glauca*, *Callicarpa eriophylla* n. sp., *Shuteria vestita*, the pretty little purple and yellow *Liparis pratensis* n. sp. and many others. Where the lalang could not grow or had been extirpated, the turf was yellow with *Smithia javanica;* and *Viola serpens* and *Patrinii*, *Habenaria lacertifera*, *Knoxia lineata* and many other small plants were to be found, and in the streams were *Ranunculus diffusus*, *Juncus lamprocarpus*, *Equisetum* and many sedges and grasses.

Some of the hill forests especially those in the neighbourhood of the Volcano Sibayak were rich in many interesting plants. We explored these hills as far as we could go in a morning, and made an expedition one day to the Volcano. Starting at 7 a.m., we crossed the plain to the first range of hills which we ascended by a very wet track. Then came a steep descent of about 1,000 feet, to a valley full of ricefields which was very wet, and contained many marsh, plants. We then made our way to a house where lived a native who acted as a guide to the track to the top of the Volcano. We crossed the rest of the paddy land and came to a sulphurous stream issuing from the Volcano; near by was a hot sulphurous spring about which grew *Cyperus polystachyus* and *Juncus*, and in the stream was a new species of *Eugenia*, many trees of which had been killed by the sulphur. Crossing this we entered the woods of the base of Sibayak, chiefly characterised by abundance of *Polygonum chinense*. The track is quite clear from this point, but is a stiff climb, the black greasy volcanic mud making the walk very arduous. The upper part of the wood proved very rich in fine and showy plants:—*Medinilla vulcanica* n. sp., *Rhododendron multicolor*, *Pratia montana*, *Clethra pulcherrima* n. sp., and a large species of *Pandanus*.

Above the wood on the actual volcano slope is a low scrub of *Medinilla vulcanica* with *Heptapleurum triste*, *Embelia pergamacea*, *Gualtheria leucocarpa* with large clumps of *Rhuacophila javanica*.

The path ascends steeply through this scrub until the last sign of vegetation disappears, and the rest of the way to the crater is a mass of bare, broken stones. The highest plant to ascend was *Litobrochia incisa.* This fern made a brake of plants not more than a foot tall on the highest part which bore any vegetation.

We reached the crater at 10.30. The crater is of considerable size and contains a small lake and some very large fumaroles encrusted with sulphur and some steam-jets which make a hissing and whistling noise which can be heard from a great distance. The views from the top are very fine extending over a great area: but thick clouds and sulphur-smoke only allowed us to catch glimpses of the views. The return was as arduous as the ascent, the last range before we descended into the plains being especially steep. Indeed, an old Battak man and his wife I met returning to the ricefields declared it was enough to kill anyone. We got back to the house at 3 o'clock. A number of Chinese were coming up to to the volcano as we left, including a woman who seemed in a state of collapse, about half way up the final ascent. They must have come a long way, but such visitors come (we were told by the guide) in great numbers.

After a few more days collecting, Mr. Knapp came up to Berastagi and I returned in his car to Medan on February 16th and left in the car for Belawan next day, arriving at Penang on the 18th.

The weather was fine, at least most of the day: but it rained heavily in the afternoons and evenings nearly always. The temperature was cool and pleasant, and at that altitude the Battaks were able to cultivate potatoes, cabbages and carrots, as good as in Europe. The Tree-tomato *Cyphomandra betacea* grew and fruited readily and indeed has run wild in the forests.

THE FLORA.

The flora of this mountain region closely resembles that of Java, as might be expected, but is strikingly dissimilar from that of the Malay Peninsula as represented by the Taiping hills on the West and the Tahan mountains on the East. Indeed there are scarcely any species common to the mountains of both countries. It should be remarked however, that they differ also in soil and climate. The high mountains of Perak are covered with a thick wet forest, and their soil is granitic in origin: the Tahan range is open and rocky, the prevailing rock being a sandstone. The mountains of Java and Sumatra except where cleared are covered with forest in most parts, rather thinner than that of the Malay Peninsula and the soil consists of volcanic debris, ash and volcanic mud.

At these high altitudes in Sumatra and Java we find a series of palaearctic genera which occur also in the mountains of Northern India, but which are strikingly absent from the Malay Peninsula, only a few occurring in one spot.

Such are *Ranunculus, Anemone, Viola, Mahonia, Sanicula, Neillia, Sambucus, Lonicera, Carlemannia, Hydrangea, Astilbe, Melissa, Disporum, Juncus, Potamogeton, Equisetum.* In one spot only in the Malay Peninsula have we met with any of this type of flora, and that is in a valley in Telom, on the borders of Perak and Pahang, where occur *Viola serpens, Sanicula europaea, Desmodium scalpe, Disporum multiflorum* and *Pouzolzia Bennettiana.* All these plants occur together at Berastagi in light open woods or open country. They do not occur at all in dense shady forests.

At the time I wrote an account of the flora of Telom (*Journ. F. M. S. Mus.* Vol. iv, p. 1) practically nothing was known of the mountain flora of Sumatra, and as most of these plants occurred in Java as well as the Himalayas, I was very puzzled to account for their occurrence in Telom. There can be no doubt they were derived from Sumatra, as Telom is nearly opposite Berastagi and further that they form evidence of a land connection between the Malay Peninsula and Sumatra. There can be no doubt that the extension of this Himalayo-Sumatran flora was formerly much wider and has been driven out by the dark wet rain-forests which at a later date over-shadowed the Himalayo-Sumatran flora. The little valley of Telom was in parts covered with a lighter woodland, though surrounded for miles by the dense forest, and it was here that this little patch of plants had persisted. It was interesting to note also that the only *Didymocarpus* in the Berastagi woods was *D. albina,* also a Telom plant.

There are still some botanists who seem to be puzzled by the occurrence of patches of a flora occurring at a considerable distance from other spots where it is found and often isolated by deep chasms or wide spaces of another kind of forest. Their natural idea is to attribute this distribution to the action of birds or wind bringing the seeds from long distances. Mr. F. Lewis in an account of a visit to the Kunadiyaparawita mountain in Ceylon (*Journ. Linn. Soc.* xiv, p. 143), while he examines this possibility rejects it on the grounds of the seeds of the plants common to this mountain and Adam's Peak having no particular development for such special means of dispersion and the absence of birds or monkeys on the mountain he is dealing with. Now it is clear that if a bird can carry the seed of any given plant from one mountain to another it can equally well carry it to all the mountains in the neighbourhood, and as a matter of fact we do not find plants carried by birds from one distant locality to another single, little isolated spot only. (An exception must be made in the case of oceanic islands where the only plants which can be conveyed from the mainland, except a few dust-seed plants, ferns and orchids, and sea-borne plants, are the only ones that can naturally get there, and where the island is naturally attractive to birds flighting oversea).

The patch of Sumatran plants at Telom, and the Adam's Peak plants on Kunadiyaparawita mountain are in most cases plants with no special means of dispersal, they belong to a variety of Orders and it is not one species but a number which are common to the two spots. There is no possible explanation of the distribution except that the two localities were connected by a land area which bore originally one continuous flora which has been by change of climate or denudation of mountains, swept out of existence between the two localities in which it still persists.

Though the floras of Sumatra and the Malay Peninsula possess a considerable similarity especially in the lowland parts, there are some very marked differences in particular groups. The genus *Saurauja* is represented by about 40 species in the Sumatra-Java area, and by about 30 species in Borneo, while the Malay Peninsula only contains 5 species, 2 of which are also Javanese: *Cyrtandra* is represented by over 50 Sumatran and Javanese species, 40 Borneo species and 7 Malayan ones. On the other hand *Didymocarpus* is represented by 55 species in the Malay Peninsula, and by only 7 species in Sumatra. The paucity of *Didymocarpi* in Sumatra is very striking as they are conspicuous plants and not easily over-looked. *Didymocarpus albina* in Berastagi woods was remarkably abundant, and I never saw elsewhere any species of this genus growing in such great masses together. Another striking fact was the scarcity of palms, only one *Pinanga* and one *Calamus* were to be seen in the woods, besides a *Caryota* possibly introduced as it chiefly occurred in and about cultivation. However, even in the Malay Peninsula, palms certainly become scarcer at 5,000 feet elevation.

While writing this paper I received a collection made in August, 1921 by Mohamed Nur, a collector sent by Mr. Burkill from the Botanic Gardens, Singapore, both at Sibolangit, lower down in this region, the Sibayak Volcano and at Berastagi and I have had also in my hands a collection of specimens made in December 1921 about Berastagi by Mrs. Burkill. I have added to this account the names of such species as are additional to my own gatherings, so as to complete as much as we know of this area.

RANUNCULACEAE.

Clematis sumatrana Ridl. n. sp.

Slender climber; stems hairy. Leaves trifoliate: petiole 2.25 in. long, hairy; leaflets ovate acute, base round, edge shortly and sparsely toothed in the upper part, above glabrous, beneath hairy on nerves and nervules; nerves 5 prominent, 4 inches long, 3.75 inches wide or less. Panicles 6 to 7 inches long, white, tomentose-hairy, branches 2 pairs, 3 in. long in flower, with small leafy bracts at base of branches. Flowers 3 or 4 in terminal cymes on the branch ends; pedicels tomentose, .5 in. long. Sepals lanceolate acuminate, base broad tomentose, white .75 in. long. Stamens hairy .5 in. long. Achenes fusiform narrowed at both ends; plume slender 1 inch long with long silky hairs.

Edges of woods, climbing on trees, Berastagi. A very beautiful species. Allied closely to *C. Leschenaultiana* DC. of Java, but the leaves are broader, less serrate, and much less hairy, the sepals narrower and more acuminate.

Ranunculus diffusus DC. var. **glabratus.**

A tall plant over 12 inches, nearly glabrous, with only a few short hairs on the stem and leaves: flowers small, only .4 in. across. Banks of streams on the Plateau, Berastagi. Very much more glabrous than the Java form, and with rather smaller flowers.

MAGNOLIACEAE.

Talauma pumila Bl. Fl. Jav. 38, pl. 12, C.

A spreading shrub about 10 feet tall, glabrous except the inflorescence. Leaves stiffly coriaceous, elliptic-lanceolate, subacute narrowed at base: nerves about 12 pairs sunk above, elevate strongly beneath: nervules elevate on both surfaces, 6 to 9 in. long, 2 to 3.5 in. wide; petioles .5 in. long, pubescent when young. Flowers solitary axillary, small, white: pedicels .5 in. long, appressed hairy. Buds globose ovoid .5 in. long. Stipules suborbicular shortly appressed hairy. Sepals ovate blunt pustular, outside glabrous, pustulate when dry, .5 in. long, .25 in. wide. Petals 6, as long, narrower linear oblong blunt. Stamens about 12; anthers linear with a small round crest. Carpels small, 5 or 6, glabrous, connate.

In a wooded ravine at Berastagi. *Distrib.* Java. This has been rather poorly described and Blume himself added to his descriptions figures of plants in the Botanical Magazine and Andrew's Botanic Respository which are not the species he had in Java.

Schizandra pyrifolia Bl.

A climber with whitish flowers. Berastagi Woods. Blume gives as a character the rounded bases of the leaves, as contrasted with the acuminate bases of the leaves in *S. axillare* Bl. In my specimens the leaves are often slightly narrowed at the base, but some are quite rounded and there is no trace of the serration of *S. axillare.* Native of Java also, and Beccari got it at Mount Singalan, in South Sumatra.

ANONACEAE.

Melodorum breviflorum Ridl. n. sp.

Strong climber. Leaves thin, coriaceous elliptic narrowed shortly at base, glabrous above except the lower part of the midrib, pale, thinly tomentose beneath; nerves 16 pairs, prominent beneath nervules transverse, very numerous, 5 in. long, 2 in. wide; petiole .25 in. long tomentose. Flowers fascicled or in short panicles axillary and terminal; peduncles thick, yellowish tomentose, .25 in.

long. Sepals 3, short, ovate blunt. Buds conic ovoid quite blunt .3 in. long. Petals, outer thick, broad lanceolate blunt, ochreous tomentose outside, glabrous purple within, .25 in. long, inner ones shorter, narrower, finely pubescent outside. Stamens glabrous; anthers linear with a short, narrow acuminate point. Carpels 7 or 8, densely reddish tomentose. Ripe carpels subglobose, a little broader than long, .75 in. through, thinly pubescent on stalks rather slender, 1 inch long.

Climbing on trees in thickets behind the bungalow, Berastagi.

This is certainly closely allied to *M. parviflorum* Scheffer, of Rhio, Banca and Borneo, but differs in its shorter ochreous, not red, tomentum and the very much shorter and blunter buds, the petals being nearly ovate lanceolate, and the stamens having a short narrow acute appendage instead of a broad rounded one.

Polyalthia sp.

Shrub with brown velvety fruits. Allied to *P. bullata*, King, but the indumentum brown-tomentose and the leaves not bullate. Berastagi forests.

Popowia foetida Maing.

Sibolangit (Mohamed Nur). *Distrib.* Malay Peninsula.

MENISPERMACEAE.

Stephania discolor Spreng.

In the ravine of a stream, Berastagi plateau. *Distrib.* Java.

BERBERIDACEAE.

Mahonia nepaulensis DC.

In woods on the plateau at Berastagi. Not very common. Apparently a new record for Sumatra. A bush 5 feet tall with orange flowers. *Distrib.* India, Java.

CRUCIFERAE.

Nasturtium indicum Linn.

Cultivated ground. Flowers yellow. *Distrib.* Tropical Asia.

Cardamine Regeliana Miq.

In streams on Berastagi plateau. Flowers white.

Cardamine africana Linn.

Woods, Berastagi. Flowers white.

Distrib. Singalan (Beccari), Java.

VIOLACEAE.

Viola serpens Wall.

Common all over the open grassy spots, where there was no lalang *e.g.* the golf links. Flowers pale violet with dark streaks on the lower lip in the mouth.

Distrib. India, Malaya, Malay Peninsula about Telom.

Viola Patrinii DC.

Tufted violet with hastate leaves. Common on the plateau but less so than *V. serpens;* not seen in flower.

Distrib. India and North Asia.

FLACOURTIACEAE.

Bennettia leprosipes Koorders.

Berastagi, also Mount Singalan (Beccari 51 and 324). I have only seen the description of this species of which only fruiting specimens are known.

POLYGALACEAE.

Polygala pulchra Hassk.

Woods. Flowers greenish. *Distrib.* Java, Malay Peninsula.

Polygala paniculata Linn.

Abundant on road sides and open places all over this district: from a few inches to 12 inches tall; flowers white. I found a dwarf form with pinkish flowers and thicker leaves also. Native of S. America and the West Indies, now naturalized here and in Java.

Polygala persicariaefolia DC.

Not very abundant, open places near the Battak village and elsewhere on the plateau. A specimen from Lake Toba was brought by Mrs. Burkill. Flowers greenish white with a mauve tip to the keel. *Distrib.* Africa, tropical Asia and Australia.

Polygala telephioides Willd.

Hardly 2 in. tall; flowers white, a garden weed, Berastagi.

Distrib. Indo-Malaya.

Salomonia cantoniensis Lour.

On banks near the village.

Distrib. A common weed in Tropical Asia.

CARYOPHYLLACEAE.

Drymaria cordata Willd.

In open spaces by cultivation, Berastagi. *Distrib.* East Asia.

HYPERICACEAE.

Hypericum mutilum Linn.

Common in the cleared ground all over the plateau. Flowers yellow; sometimes as a low tufted plant about 4 in. tall, and in longer grass a slender, hardly branched plant over a foot tall.

TERNSTROEMIACEAE.

Saurauja vulcanica Korth.

The commonest and most conspicuous tree on the plateau, the leaves appearing white from their undersides blown by the wind.

The tree is stout about 30 feet tall; flowers white.

Distrib. Sumatra only, Singalan.

Saurauja roseata Ridl. n. sp.

Tree about 30 feet tall. Leaves coriaceous elliptic-oblong, blunt, base broad truncate, above smooth glabrous, beneath covered with red brown tomentum; nerves elevate beneath, horizontal, parallel, over 60 pairs, midrib stout, sunk above, elevate beneath, 8 in. long, 5 in. wide; petioles 2 in. long, stout, deciduously tomentose. Panicles terminal axillary, 6 in. long, 3 in. wide, on a peduncle 4 in. long. Bracts at base of branches linear, .4 in. long. Bracteoles ovate, smaller. Flowers numerous very shortly pedicelled, tomentose. Sepals 5, oblong-ovate, round at tip, outer pair largest, tomentose outside, inner three glabrous, smaller, all ciliate, rose pink, enlarged and quite glabrous in fruit, .1 in. long. Petals rosy pink hardly longer, thin, oblong. Stamens 10; filaments short; anthers small, rounded. Style 1 with 3 stigmas recurved. Fruit oblong ovoid, crowned with the style.

Open country at Berastagi. Only one or two trees seen; foliage like that of *S. sapotacea* Ridl. of Korinchi, but flowers quite different.

Saurauja cuspidella Miq.

Small tree with greenish flowers, Berastagi woods.

Saurauja ferox Korth.

Sibolangit (Mohamed Nur). *Distrib.* Borneo.

Saurauja Reinwardtiana Miq.

Sibolangit (Mohamed Nur). *Distrib.* Java.

MALVACEAE.

Sida carpinifolia Linn.

Toba Lake (Mrs. Burkill). *Distrib.* Tropics.

STERCULIACEAE.

Sterculia sumatrensis Ridl. n. sp.

A treelet. Leaves entire elliptic, shortly cuspidate, base shortly cuneate, glabrous chartaceous; nerves 8 pairs elevate beneath, secondary nerves few transverse, reticulations wide, all elevate beneath, the main nerves inarching within the margin 8 in. long, 4 in. wide; petioles 1 in. long. Panicles very slender and lax with few distant short branches 8 in. long; branches 1 in. with few—4 or 5-flowers on each, all sprinkled with stellate hair tufts. Flowers pale green on short pedicels, campanulate: lobes 5, split more than half way down, narrow lanceolate acuminate with scattered and stellate hair-tufts outside, the edges fringed with long white hairs. Staminal column as short as the campanulate tube; anthers 6 in a globose head.

Forests of Berastagi. West Sumatra, Padang at Ayer Mancior (Beccari 710). Lampongs (Teysmann).

I have not seen ripe fruit or female flowers of this plant, Miquel in *Fl. Ind. Bat. Supp.*, referred this plant as represented by Teysmann's leaf specimens to *S. nobilis* Sm. = *Sterculia Balanghas* Roxb., from which it is entirely different.

Melochia velutina Bedd.

Sibolangit (Mohamed Nur). *Distrib.* Indo-Malaya.

TILIACEAE.

Grewia acuminata Miq.

A plant with the climbing habit of *G. umbellata* of the Malay Peninsula, but while that is glabrous, this is mealy pubescent on the inflorescence and hairy on the midrib and nerves of the leaf. It occurred in the lane by the Battak village at Berastagi and in the woods. It has also been collected in Sumatra in the Padang district by Beccari at Ayer Mancior, 739, and occurs in Java; the Javanese form appears to me to be less hairy than the Sumatran one.

Triumfetta pseudo-cana Sprague.

In a ravine in cultivated ground by the edge of a stream. Flowers yellow. Berastagi plateau. This occurs all over the Malay region.

Triumfetta cana Bl.

In the forests, Berastagi. *Distrib.* Java.

OXALIDACEAE.

Oxalis javanica Bl.

Open country on the plateau, Berastagi, and in the west hill woods.

This is classed under *O. corniculata* Linn. by some authors, but appears very different from that species, as originally described and also from the variety *tomentosa* which occurs in the Malay Peninsula and India. The ordinary form here is creeping with distant branches about 6 in. tall; the leaves .75 in. wide; the leaflets deeply retuse with pilose edges, the inflorescence and stems usually are pilose and the fruit hairy. Another form was erect with slender stems, hairy all over, and woody at the base. Leaves smaller. *O. javanica* is also a native of Java.

Dapania scandens Stapf.

Sibolangit, Dato Pulo Siam valley (Mohamed Nur).

Climber; flowers pink. This form, common in Borneo and Sumatra, has narrower leaves with more ascending nerves than the type from Gopeng in Perak.

BALSAMINACEAE.

Impatiens platypetala Lindl.

Very common all over this region from the low country to the Berastagi plateau in damp spots. *Distrib.* Java.

Impatiens pyrrhotricha Miq.

Common all through the woods, about 6 to 8 in. tall with large canary yellow and orange flowers. The form here is less hairy, and the leaves less crenate than usual. *Distrib.* Sumatra.

Impatiens Korthalsii Miq. Ill. Flor. Arch. p. 100.

Very local in thick herbage in a stream in the forest edge, only a few plants. A herb 2 feet tall with yellow flowers.

Distrib. Sumatra.

RUTACEAE.

Evodia latifolia DC.

A large tree, Berastagi woods.

Distrib. Malay Peninsula and islands.

Zanthoxylum acanthopodium DC.

A spiny shrub about 6 feet tall in an open grassy spot at Berastagi, the small-leaved form. *Distrib.* China, India.

Glycosmis sumatrana Ridl. n. sp.

Shrub; young parts deep red scurfy. Leaves under 12 in. long, with 3 to 4 pairs of leaflets: leaflets elliptic blunt, shortly cuneate at base, chartaceous, glabrous, 7 to 8 pairs of nerves ascending, elevate beneath, closely gland-dotted, 4 in. long, 2 in. wide; petiole .1 in. long. Inflorescence red-scurfy panicled 1.5 in. long with few branches .3 in. long. Bracts linear acute, red scurfy .05 in. long. Flowers very small (but not fully developed). Sepals orbicular, edges ciliate. Petals ovate-oblong. Stamens, filaments broad narrowed upwards. Pistil glabrous.

Woods, Berastagi. This is allied to *G. puberula,* Lindl. of Penang, but the leaves are thinner with more leaflets and ascending nerves, and the pistil is not glandular.

ILICACEAE.

Ilex triflora Bl. var. **Griffithii.**

Bandar Bharu, Gunong Sibayak (Mohamed Nur). Quite like the Taiping Hills form.

CELASTRACEAE.

Celastrus axillaris Ridl. n. sp.

Adult leaves thinly coriaceous, ovate, base round, shortly acuminate, edge obscurely serrate; nerves 7 pairs, elevate beneath, 4 in. long, 2.5 in. wide; petioles .25 in. long; leaves on floral shoots thinner lanceolate, 2.5 in. long, .75 in. wide. Flowers small, white in axillary cymes of 5 or more with a terminal panicle of cymes, 1 in. long; pedicels slender .1 in. long. Calyx of 5 rounded fimbriate lobes. Petals oblong, white, much longer, blunt. Stamens within a thin annular disc, 5.

Berastagi woods. This differs from *C. paniculatus* in its short axillary cymes.

Perrottetia alpestris Loesen.
Very common at Berastagi in the woods, a small tree.
Distrib. Malay Peninsula and islands.

RHAMNACEAE.

Rhamnus sumatrensis Ridl. n. sp.

Tree. Leaves alternate, chartaceous oblong acuminate, base round, edge obscurely serrate crenulate, when young pubescent beneath, when adult glabrous; nerves 6 pairs with midrib sunk above, elevate beneath, 4.5 in. long, 1.5 in. wide; petioles 1 in. long. Racemes axillary pubescent. Flowers in fascicles in lower part, green; pedicels .05 in. long. Calyx campanulate, lobes 5, triangular acute, all hairy. Petals minute, oblong adnate to stamens. Stamens short, from edge of disc, shorter than sepals. Disc lining the calyx-tube. Ovary grooved, free; style grooved; stigma capitate bilobed. Berastagi Woods.

Allied to *Rhamnus nepalensis*, but the sepals are not acuminate as in that species and the stigmas much smaller.

AMPELIDACEAE.

Vitis trifolia Linn. (*Cissus carnosa* Roxb.)
Berastagi, edges of woods. Flowers white; fruits green.
Distrib. Indo-Malaya.

Vitis geniculata (*Cissus geniculata*, Bl.)
Berastagi, at 5,000 ft. alt. Fruits dirty white.
Distrib. Java.

Vitis (§ Tetrastigma) Scortechinii Ridl. (*V. semicordata* var. *Scortechinii* King). Berastagi Woods.
Distrib. Java, Malay Peninsula.

Vitis rumicisperma Laws.
Berastagi (Mrs. Burkill). *Distrib.* Malay islands.

Leea sundaica Miq.
Big shrub. Flowers green, fruits purplish. Berastagi.
Distrib. Java.

Leea aequata L.
Sibolangit (Mohamed Nur). *Distrib.* Malay islands.

SAPINDACEAE.

Lepisanthes montana Bl.

Small tree 15 feet tall. Flowers white on the stem. Berastagi Woods. *Distrib.* Java, Malay Peninsula.

Lepisanthes sp.

Slender tree. Leaves glabrous oblanceolate, grey when dry; nerves 8 pairs elevate beneath, 14 in. long, 5.5 in. wide. Fruiting spikes 8 together, 8 in. long, with cymes of 2 to 3 pedicels. Fruit sub-triquetrous, pink, covered with short fur, .75 in. long.

Berastagi Woods. Small tree.

STAPHYLEACEAE.

Turpinia sphaerocarpa Hassk.
Big tree with pinkish fruits. Berastagi Woods.
Distrib. Java.

OLACACEAE.

Phytocrene bracteata Wall.
Sibolangit, Bukit Kluang (Mohamed Nur).
Distrib. Malay Peninsula.

LEGUMINOSAE.

Crotalaria ferruginea Grah.
In lalang at Berastagi.
Distrib. Malay Peninsula and islands.

Crotalaria sessiliflora Linn.
In lalang, Berastagi. Flowers pale yellow.
Distrib. India, China, Malaya.

Crotalaria lanceolata E. Meyer.
Berastagi (Mrs. Burkill).
Distrib. East Africa. A handsome yellow *Crotalaria* in gardens here whence it has escaped to the roadside.

Desmodium scalpe DC.
Very abundant in the Berastagi Woods. Conspicuous from its orange-scarlet flowers.
Distrib. India, Malay Peninsula (Telom) and islands and Africa.

Desmodium sinuatum Bl.
A common bush about 3 feet tall with mauve flowers, in the open plateau in lalang, Berastagi. *Distrib.* Java.

Desmodium parvifolium DC.
Open plateau, Berastagi. Flowers white.
Distrib. India, Malaya, China.

Shuteria vestita Walk. and Arn.
Abundant among lalang. Flowers reddish. Berastagi plateau. Rather a hairier form than most.
Distrib. India, Malay islands.

Smithia javanica Bl.
Creeping in short grass: golf links, etc. on the plateau. Flowers large, bright yellow. *Distrib.* Java.

Caesalpinia sepiaria Roxb.
A climber with lemon yellow flowers with red stamens. In the forest, and in thickets, Berastagi. *Distrib.* India, Malaya.

Mezoneuron Kunstleri King.
Sibolangit (Mohamed Nur). Apparently this species, but only in young bud. *Distrib.* Perak.

Cassia mimosoides Linn.
Open country. Flowers yellow, Berastagi.
Distrib. India, Malay Peninsula and islands.

Cassia siamea Sibolangit. Bukit Kluang (Mohamed Nur 7422).

ROSACEAE.

Rubus rosaefolius Smith.

Common, forming thick impenetrable bushes; fruit orange. Berastagi Woods. *Distrib.* Indo-Malaya.

Rubus pyrifolius Smith.

Var. *sumatrana.* Leaves ovate-lanceolate acuminate, bluntly serrate crenulate, larger than in the Javanese form, 5 in. long, 2.5 in. wide. The Javanese form has elliptic leaves 3.5 in. long, 2 in. wide, with acute serrations.

Rubus rugosus Sm.

Berastagi Woods. Flowers small, white. *Distrib.* Java.

Rubus glomeratus Bl.

Berastagi. Fruit red. *Distrib.* Malay Peninsula & islands.

Rubus battakensis Ridl. n. sp.

Branches slender, hairy at the top, below glabrous with numerous hooked prickles. Leaves deltoid-ovate obscurely trilobed, subcordate, finely dentate above, glabrous except the hairy midrib and nerves beneath, pale thickly hairy tomentose; nerves 6 pairs, long hairy as are reticulations, 3 in. long, 2 in. wide; petioles slender, 1 in. long; prickles small numerous recurved. Stipules broad with numerous processes, thickly silky hairy. Flowers few, one or two in the uppermost axils, with a short raceme of 4 or 5 at the top; pedicels .5 in. long, densely tomentose hairy. Bracts ovate-lanceolate hairy .1 in. long. Sepals ovate acuminate densely appressed hairy, .25 in. long. Petals short, white. Stamens shorter than sepals.

Berastagi Woods. This resembles *R. elongatus* in many points, but is very much more hairy, the leaves beneath and the base of the sepals being quite long hairy.

Pyrus granulosa Bertol.

Lane near the village, Berastagi; fruits white.
Distrib. Malaya, India.

SAXIFRAGACEAE.

Dichroa febrifuga Lour.

Shrub. Flowers white; anthers light blue. Woods, Berastagi.
Distrib. India, Malay Peninsula and islands.

HALORAGIDACEAE.

Gunnera macrophylla Bl.

Damp ravines, Berastagi. *Distrib.* Philippines.

MYRTACEAE.

Eugenia sulphurata Ridl. n. sp.

Bushy tree about 30 feet tall; branches 4-angled with low undulate wings in the uppermost twigs. Leaves stiffly coriaceous, ovate lanceolate acutely long acuminate; midrib prominent beneath; nerves 7 pairs prominent beneath, joining an intramarginal nerve, 1.8 in. long, .8 in. wide; petioles thick .15 in. long. Panicles lax in upper axils and terminal; branches 4-angled and winged. Flowers small, 3 to 5 sessile on the end of each branch, white. Bracts brown papery, oblong-lanceolate blunt shorter than the calyx. Calyx obconic, ribbed rugose, .18 in. long, lobes round persistent. Petals orbicular calyptrate. Stamens fairly numerous in a thick series round the mouth of calyx-tube, .18 in. long. Style as long. Fruit subglobose, pulpy pithy, white, as big as a pea.

In the sulphurous stream at the foot of the Sibayak volcano. There were a good many trees here but a large proportion were dead from the sulphur fumes. Allied most nearly to *E. grata*, but the leaves strongly nerved beneath.

Eugenia sp.

A big tree in the forests. Common but hardly any flowers.

MELASTOMATACEAE.

Melastoma normale Don.

Berastagi on the open plateau. Large bush. Flowers mauve. *Distrib.* Java.

Melastoma vulcanicum Ridl. n. sp.

Bush; branches covered with brown acuminate toothed scales. Leaves coriaceous lanceolate acuminate narrowed to base, 5-nerved, above covered with scattered short appressed acuminate scales, beneath covered with soft short acuminate scales, the nerves with lanceolate acuminate scales. Flowers 4 or 5 in the terminal cyme. Calyx covered with dense soft lanceolate acuminate pale scales, tube .4 in. long, lobes as long, lanceolate acuminate. Petals white or tinted rose. Stamens 10: anthers lanceolate blunt subequal, the slightly longer ones with long connective produced bilobed at tip.

Abundant at Sibayak volcano in the forest near the top, Berastagi.

Melastoma molle Wall.

Sibolangit, Bukit Kramat Kuda (Mohamed Nur). *Distrib.* Malay Peninsula, Philippines.

Dissochaeta inappendiculata Triana.

Climber. Flowers pink, Berastagi Woods. *Distrib.* Java.

Sonerila tuberculifera Cogn.

Flowers pink, Berastagi Woods; also collected by Beccari on Mount Singalan.

Oxyspora racemosa Ridl. n. sp.

A spreading shrub, with slender branches, quite glabrous. Leaves chartaceous ovate to ovate-lanceolate, long caudate entire, base shortly narrowed, 5-nerved, three only running into the cauda; nervules parallel, transverse, 4.25 to 5 in. long, (cauda 1.25 in. long) 1.6 in. wide; petioles .25 in. long. Flowers white, in lax racemes terminal, 4.5 in. long. Calyx goblet-shaped, .12 in. long, ribbed with 4 short rounded lobes forming a cup. Petals 4, short ovate acute, white. Stamens longer 8, four larger than the others; anthers linear, connective slightly thickened at back; style slender subulate. Ovary small ellipsoid, free or nearly so at base of calyx-tube.

Woods on the ridge towards the Sibayak volcano. Abundant, a conspicuous bush with its slender racemes of white flowers .4 in. long.

Phyllagathis rotundifolia Bl.
Bandar Bahru, Gunong Sibayak (Mohamed Nur 7373).
Distrib. Malay Peninsula and islands.

Medinilla septuplinervia Cogn.
Sibayak volcano woods. Epiphytic and terrestrial; bush; flowers rose-pink. Also occurs on Mount Singalan.

Medinilla vulcanica Ridl. n. sp.
A terrestrial shrub 2 feet tall, forming thickets. Stems .25 in. through, 4-angled above with large pustules, nodes enlarged. Leaves stiffly coriaceous, obovate, blunt or rounded at the top; nerves one pair from the base, and one from the broad thick midrib, .75 in. from the base, 3.25 in. long, 2.25 in. wide; petiole thick, .25 in. long. Panicle axillary below the leaves; peduncle 2.5 in. long; branches 4 or 5, slender, 1.5 in. or less long; flowers solitary at the ends of the branchlets. Calyx urceolate papillose when dry. Petals white, ovate 5, acute. Stamens 5, filaments slender; anthers acuminate slender, with two upcurved processes at base. Fruit globose, as big as a large pea, white.

On the slopes of the Sibayak volcano, forming a dense scrub up to the knees.

Medinilla micrantha Ridl. n. sp.
Epiphyte with slender branches, pale, warted in the lower part. Leaves coriaceous elliptic, shortly acuminate blunt, subsessile; nerves inconspicuous, one pair, base rounded subcordate, 3 in. long, 1.5 in. wide. Flowers very small, white, in a small umbellate cyme .6 in. across on a slender peduncle .75 in. long. Bracts 2, small at base of flower. Calyx campanulate, truncate. Petals oblong blunt, .1 in. long. Stamens short, 8, equal, pink. Fruit small, campanulate.

Allied to *M. cuspidata* Bl. of Borneo of which however, the flowers are not known, but this has not long acuminate leaves.

Medinilla Clarkei King.
Bandar Bharu, Gunong Sibayak (Mohamed Nur).
Distrib. Malay Peninsula.

Pachycentria scandens Ridl. n. sp.
Scandent shrubby plant with smooth brown bark. Leaves thin, coriaceous, elliptic acuminate at both ends, 3-nerved, 3.5 in. long, 1.5 in. wide; petioles .4 in. long. Flowers in a terminal cyme of 3 branches each with 3 flowers, whole cyme 1.5 in. long.

scurfy. Bracts at base of branches 2, lanceolate acuminate, .1 in. long or less. Pedicels .1 to .15 in. long. Calyx funnel-shaped, narrowed slightly below the limb; lobes tooth-like, 4. Corolla in bud acuminate. Petals lanceolate acuminate, 4, white or pink .5 in. long. Stamens 8, 4 smaller than the others with shorter filaments and blunter points, larger ones acuminate with small blunt processes at the base, dorsal process minute. Style as long as stamens. Fruit globose, red, .25 in. through, crowned by the persistent calyx-tube.

Berastagi; forests; flowers white; fruit red; climbing on trees.

ONAGRACEAE.

Jussieua villosa Lam.

Damp swampy spots. Flowers one inch across, yellow. Berastagi. *Distrib.* India, Malaya.

CUCURBITACEAE.

Melothria punctata Cogn.

In a lane by a Battak village, Berastagi.

Distrib. Africa, Java, Celebes.

Melothria mucronata Miq.

Berastagi; flower white (Mrs. Burkill). *Distrib.* Java.

Gynostemma laxa Cogn.

Berastagi Woods. Flowers green.

Distrib. India and Ceylon; also collected in Sumatra by Beccar.

Hodgsonia capniocarpa Ridl.

Sibolangit, Bukit Samaik (Mohamed Nur 7450).

Distrib. Malay Peninsula.

BEGONIACEAE.

Begonia Beccariana Ridl. n. sp.

A rather tall, hairy plant, stem and petioles covered with long red hairs. Leaves ovate acuminate, base unequally bilobed or acutely lobed, deep blackish green above, red beneath, pustular above, dotted with short hairs beneath, edge dentate with a hair on each tooth; nerves about 6, dense hairy, 5 in. long, 4 in. wide; petiole 4 in. long. Peduncle hairy 4 in. long, with about 6 white flowers. Males 1.5 in. across. Sepals oblong, roughly hairy on the back. Petals shorter and narrower, blunt subovate. Stamens very numerous; anthers linear-oblong blunt; filaments free. Female flower smaller, glabrous except the hairy ovary. Fruit hairy, 3-winged, two wings .5 in. long, .25 in. wide, larger one triangular .5 in. long and .5 in. wide at the base.

Hill Woods at Berastagi. Also collected by Beccari on Mount Singalan (no. 126). His specimens are more deeply cut in the leaves than mine and the leaves are larger, 6 in. long and wide.

This is near *B. Lowiana* King and *B. robusta* of Java, the flowers are larger than in the first named and the leaves more deeply cut, and it is a smaller plant altogether than the Javanese one.

Begonia turbinata Ridl.

Flowers white: fruit green fleshy. Occurs on Korinchi. The leaves are more distinctly toothed than in the type plant.

Begonia trigonocarpa Ridl.

Sibayak Volcano Woods. Flowers white, tipped with pink. Also occurs on Korinchi.

Begonia flexula Ridl. n. sp.

Slender erect plant; stems flexuous, rough with small papillae about 8 in. tall possibly more, internodes 1 in. long, nodes slightly swollen. Leaves thin, membranous lanceolate long acuminate, base narrowed, blunt, obscurely inaequilateral, edge crenate-undulate; nerves 3 pairs ascending alternate, all glabrous except the nerves shortly scabrid-hairy beneath, 4 in. long, 1.5 in. wide; petiole .2 in. long or less. Stipules linear acuminate, caudate .1 in. long. Flowers, male 3 or 4 on a slender filiform peduncle .2 in. long; pedicels .1 in. long. Perianth-lobes 2, oblong blunt, white, .1 in. long. Stamens 15. Anthers oblong on filament free to base, blunt, club-shaped, not apiculate. Female flowers with 4 equal or subequal lobes. Capsule oblong-orbicular, base round; wings 3, rounded equal, 3.3 in. long by .4 in. wide crowned by the persistent sepals. Sibulangit, Bukit Kluang (Mohamed Nur 7444).

This is allied to *B. isoptera* Dry., but is the smallest form of this section I know, the slender rough flexuous stem and the very small flowers and fruit are characteristic.

UMBELLIFERAE.

Hydrocotyle asiatica Linn.

Common in cultivated ground. A form with woolly petioles and underside of leaves occurred also. *Distrib.* Warm countries.

Hydrocotyle hirsuta DC.

Common on the plains at Berastagi. *Distrib.* Malay islands.

Hydrocotyle javanica Thumb.

Woods of Berastagi. *Distrib.* India, Malay Peninsula and islands.

Sanicula europaea Linn.

Abundant in woods, Berastagi.
Distrib. Europe Asia, Malay Peninsula (Telom), Africa.

Oenanthe laciniata Miq.

In streams, open plain. Flowers white.
Distrib. Malay Peninsula and islands.

Torilis anthriscus Gmel.

Cultivated ground near Berastagi. Flowers white.
Distrib. Europe, North Asia.

ARALIACEAE.

Aralia Beccarii Ridl. n. sp.

Tree about 20 feet tall, spiny with spines stout, conic, some slightly flattened with an acute point, base hairy, all light brown .25 in. long. Leaves large, compound, rachis covered with scattered thorns, scurfy, branches hairy and spiny; leaflets ovate or elliptic-ovate, shortly cuspidate, base rounded, edge serrulate, above tesellate and sprinkled with short hairs, beneath densely hairy on the nerves (about 8 pairs) and reticulations, 4 to 4.5 in. long, 2 to 2.5 in. wide; petiolules .1 in. long above, .4 in. long in lower leaflets. Panicles 18 in. long; branches distant below, 6 in. long, 4-umbelled at the top, covered with short, appressed hairs and sprinkled with short thorns. Bracts at base of branches lanceolate acuminate cuspidate, .4 in. long. Umbels very many .25 in. through. Flowers small, sessile with short lanceolate bracts. Calyx obconic, pustular with hair bases; lobes 5, short triangular acute. Petals small, 5, oblong. Stamens 5, inflexed; anther ellipsoid. Styles 5, eventually reflexed, quite free to base. Fruit small, ellipsoid, strongly 5-ribbed when dry. Common in the Berastagi Woods, but I only found one tree showing inflorescence on the Western Hills. Also collected by Beccari at Kayu Tanam, Padang, south west Sumatra No. 871.

Brassaiopsis floribunda Seem. (*Macropanax glomerulatum* Miq.)

A treelet 15 feet tall, spiny; flowers yellowish. Berastagi woods.

Distrib. Java.

Heptapleurum triste King.

In the low scrub on the foot of the Sibayak volcano.

Distrib. Perak Hills.

Heptapleurum heterophyllum Seem.

Bandar Bahru, Gunong Sibayak (Mohamed Nur).

Distrib. Malay Peninsula and islands.

Heptapleurum polybotryum Seem.

Berastagi (Mrs. Burkill). Fruit deep claret. *Distrib.* Java.

CAPRIFOLIACEAE.

Viburnum coriaceum Bl.

Fruit red. Flowers white. Stamens dark violet. Small tree or shrub, Berastagi woods. *Distrib.* Java.

Lonicera pulcherrima Ridl. n. sp.

Tall climbing plant; branches velvety. Leaves coriaceous, ovate blunt or subacute, base shortly narrowed, above glabrous shining, nerves and nervules depressed beneath, white tomentose; nerves 3 pairs and reticulations elevate, 3 in. long, 2.25 in. wide; petioles .25 in. long, velvety. Flowers in terminal cymes of 15 or more. Bracts small, lanceolate. Calyx .08 in. long, tube ellipsoid, subglabrous, lobes lanceolate as long as tube velvety. Corolla pale yellow, tube slender 1 in. long, velvety; lobes linear-oblong .25 in. long. Stamens filaments linear, sparsely hairy; anthers curved linear. Styles sparsely hairy .5 in. longer than corolla-tube. Stigma capitate.

Berastagi, climbing on trees on the hill above the bungalow.

This beautiful honeysuckle is allied to *L. macrantha* DC. of India and Burma, differing in the stiffer leaves, not rounded at the base and white velvety beneath, the stem is not hairy but softly thickly velvety, and the calyx-lobes not linear acuminate, shorter and broader.

Sambucus javanica Bl.

Common in the Berastagi woods. *Distrib.* India, China, Malay islands. Absent from Malay Peninsula.

RUBIACEAE.

Hedyotis pinifolia Wall.

Berastagi plains. A slender erect form on banks in short grass. *Distrib.* Indo-Malaya.

Hedyotis hispida Retz.

Plains, Berastagi. *Distrib.* Indo-Malaya.

Hedyotis stipulata Wall.

Berastagi. Flowers white. *Distrib.* India, Malay Peninsula.

Ophiorrhiza bracteata Korth.

Slightly woody at the base, not or sparingly branched, scurfy hairy and viscid above. Leaves hairy on the nerves beneath and dotted with bulbous based hairs above. The flowers large for an *Ophiorrhiza* nearly .5 in. long, pure white with large lanceolate green bracts. The stipules are ovate cuspidate. In the hill woods at Berastagi high up. *Distrib.* Java.

Ophiorrhiza deflexa Ridl. n. sp.

Tall fleshy herb sparsely scurfy. Leaves lanceolate-elliptic and oblanceolate, very variable, acuminate sparsely hairy and pale beneath, nerves 13 pairs slender, looping near the edge, 1 to 5.5 in. long, 1.5 to 2.5 in. wide; petiole 1 in. long. Stipules filiform. Cyme pendulous in flower, erect in fruit. Peduncle .5 in. long; branches about 4.25 in. long, all scurfy pubescent. Bracts linear setaceous, small. Pedicels .1 in. or less long. Calyx short, angled. Corolla campanulate, tube broad, lobes recurved .4 in. long, .25 in. wide at the mouth. Stamens at the base of the tube. Fruit cyme erect; peduncle 2 in. long; branches 1.5 in. long, hairy. Capsule transversely oblong, upper edge straight, .3 in. wide, puberulous.

In the Berastagi forest woods. A shrublet with pinkish-white flowers. Remarkable for its wide trumpet-shaped corolla.

Ophiorrhiza exserta Ridl. n. sp.

A widely branched herb, scurfy-pubescent. Leaves thinly membranous, glabrous above except the edge which has small stiff hairs, scurfy on the nerves beneath, oblong or elliptic to ovate, acuminate and decurrent on the petiole for some way; nerves parallel, 11 pairs, 3 to 3.5 in. long, 1.25 to 1.4 wide; petioles .75 in. long, pubescent. Stipules setaceous hairy. Cymes terminal and in the uppermost axils; peduncle .25 in. long, pubescent; branches short. Flowers white about 12 in a cyme. Bracts very small setaceous. Calyx small, campanulate with narrow teeth as long as tube. Corolla urceolate, tube .15 in. long dilate at base, narrowed above; lobes reflexed. Stamens long projecting.

Hill woods, Berastagi. I got no fruits of this pretty species which is allied to *O. tenella* Ridl., but larger and with a different shaped corolla.

Ophiorrhiza subcrenata Ridl. n. sp.

Herbaceous; base of stem slightly woody, creeping. Leaves elliptic-lanceolate, thickly membranous, glabrous except midrib, scurfy beneath and young parts hairy, acuminate at both ends, edge crenate undulate, nerves slender, 10, with nervules and reticulations conspicuously elevate above, 2 in. long, 1 in. wide; petiole slender .4 in. long. Stipules oblong-lanceolate acuminate, glabrous, .1 in. long. Peduncles terminal .5 in. long. Flowers few, very shortly pedicelled. Bracts persistent linear-oblong, blunt glabrous, .1 in., longer than pedicel and ovary. Calyx small, red hairy as is pedicel, lobes small, acute. Corolla cylindric .2 in. long, white; lobes short rounded. Stamens included. Capsule V-shaped, glabrous when adult, very slightly retuse at top, bracts persistent.

Sibayak Volcano (Mohamed Nur 7345).

A very distinct little plant in having the reticulations and nerves elevate above and not beneath, and in its crenate leaves. The bracts also are persistent and for the flowers large.

Carlemannia sumatrana Ridl. n. sp.

Herb about a foot tall, branched puberulous above. Leaves membranous ovate to lanceolate acute narrowed to base, edge coarsely serrate, sparsely white hairy on both sides; midrib beneath and 5 pairs of nerves shortly close hairy, 3 in. long, 1.25 in. to 1.5 in. wide; petioles slender 1 in. long. Stipules a mere ring very obscure. Corymbs terminal; peduncles and branches puberulous, 1 in. long and wide, many flowered, or smaller. Calyx-tube very small, campanulate, lobes 4, linear acute hairy as long as the corolla, green .1 in. long. Corolla hairy at the tip, tube cylindric, lobes 4, hairy outside. Stamens 2, from the corolla base; anthers linear blunt, large for the flower. Style thick cylindric sigmoid. Capsule .1 in. wide, broad at base, narrowed at the top, strongly 4-lobed at the base, each lobe separately dehiscing. Seeds numerous, black, reticulate.

Woods, Berastagi.

The genus *Carlemannia* has not hitherto been recorded from the Malay islands. It is represented by 3 or 4 species in North India, one or more in China and Cochin China. This species is distinguished by the very long sepals and the curiously 4-lobed capsule. I have no record of the colour of the flowers, but the corolla seems to have been pink.

Argostemma boragineum Bl.

Berastagi woods. This differs from the typical Javanese form in having the corolla-lobes more rounded and less acute.

Distrib. Java.

Argostemma stellatum Ridl. n. sp.

Slender herb 8 in. tall; stem glabrous. Leaves equal lanceolate, narrowed at both ends, whitish beneath, edge slightly crenulate, dotted all over with scattered short hairs, midrib hairy above glabrous; nerves 4 pairs, 1.5 to 2.5 in. long, .4 to .9 in. wide; petiole .1 to .2 in. long. Stipules oblong, rounded at tip. Cyme of 3 flowers; peduncle 1 in. long. Bracts at base of cyme 3, oblong .1 in. long; pedicels .6 in. long hairy at the top. Calyx hairy, lobes lanceolate acute. Corolla pure white 1 in. wide or more, lobes lanceolate-acute, .5 in. long, .3 in. wide. Stamen-column shorter, narrowed to the tip.

Berastagi, hill woods. A beautiful species with large white star-like flowers. Allied to *A. montanum* Bl. and to *A. angustifolium* Miq., but that is described as glabrous. The plant is occasionally branched.

Argostemma corymbosum Ridl. n. sp.

Stout ascending hairy herb, 10 in. tall. Leaves equal ovate-elliptic, base rounded or truncate, tip acute, sprinkled with hairs above; midrib hairy; nerves 11 pairs and midrib long-hairy beneath, 4.25 in. long, 2.5 in. wide, petiole densely hairy 1.5 in. long. Stipules oblong-lanceolate acuminate, .75 in. long. Peduncle hairy 2.5 in. long. Flowers umbelled, 17 or more. Pedicels 1 in. long, hairy. Calyx small campanulate, hairy; lobes small broadly ovate. Corolla lobes lanceolate acuminate .3 in. long. Staminal column as long, narrowed to the tip.

In the Berastagi hill woods on the track to Sibayak Volcano.

Argostemma triflorum Ridl. n. sp.

Herb, 6 in. tall, hairy. Leaves unequal, the large one elliptic-lanceolate acuminate, base narrowed blunt, deep green above, white beneath, edge slightly serrate with hairs on the serrations; midrib above and beneath and 5 pairs of nerves hairy, 1.5 to 1.75 in. long, .5 in. wide; petiole .15 in. long; small leaf, ovate sessile hairy on the edge, .25 in. long. Stipules leafy, green resembling the small leaf but smaller. Peduncle .5 in. long, hairy. Cyme 3-flowered. Bracts at base 3, lanceolate acute, hairy on the edge .1

in. long. Pedicels white, hairy .5 in. long. Calyx obconic hairy. Corolla-lobes narrow linear lanceolate, .25 in. long, hairy on the back. Staminal column thick, as long.

Berastagi Hill woods. Near *A. uniflorum* Bl. but it has 3 flowers in the cyme. It might be *A. pulchrum* of Korthals from Sumatra, but I have seen no specimens of this and the description is quite inadequate.

Mussaenda hirsuta Ridl. n. sp.

Scandent; branches densely red-brown-velvety. Leaves elliptic-lanceolate acuminate, long narrowed to the base; nerves 14 pairs, slender raised beneath, densely hairy as is midrib both sides and the surface of the leaf on both sides more sparsely hairy, 4.5 in. long, 1.75 in. wide; petioles densely hairy .5 in. long. Corymb densely hairy all over 1.5 in. long. Calyx-tube funnel-shaped .2 in. long, hairy, lobes much shorter, linear-lanceolate, hairy, top of ovary raised, black (when dry) glabrous. Enlarged sepals ovate narrowed to base, blunt at tip hairy all over, .2 in. long by 1.75 in. wide, claw slender 1 in. long. Corolla orange, tube 1.25 in. long slender cylindric hairy, lobes short .2 in. long oblong blunt.

Common on wood edges, Berastagi.

I know no species really at all like this. *M. rufinervis* Miq. of Padang in South Sumatra has quite different leaves and sepals as long as the calyx-tube.

Mycetia fasciculata Korth.

Shrub with yellow flowers, Berastagi Woods. *Distrib.* Java.

Mycetia angustifolia Ridl. n. sp.

A tree about 30 feet tall. Leaves narrow lanceolate, long acuminate, long narrowed to both ends, thin chartaceous, glabrous, nerves 13 pairs, 4 to 8 in. long, .5 to 1 in. wide; petioles .3 in. long. Stipules lanceolate acuminate, dilate at base .25 in. long. Cymes axillary 2 in. long, branching from near the base; branches very slender puberulous; bracts linear acuminate; pedicels .5 in. long. Calyx campanulate, lobes linear, half as long as the tube. Corolla yellow .5 in. long, tube cylindric, lobes short recurved.

Berastagi Woods. This cannot be Miquel's *Adenosacme lanceolata* (*Mycetia lanceolata*) Palambajan, Sumatra, from description: for it is described as a shrub with short stipules puberulous; nerves beneath and calyx-lobes longer than the tube.

Urophyllum glabrum Jack.

Woods on the Sibayak Volcano.

Distrib. Malay Peninsula, Java, Borneo. This is usually a lowland plant; but Korthals got it on Mount Singalan.

Urophyllum grandifolium Ridl. n. sp.

A tall shrub, glabrous except the inflorescence; branches .3 in. through. Leaves stiff, thinly coriaceous elliptic, shortly cuspidate, base narrowed shortly; nerves about 20 pairs elevate beneath 10 in.

long, 5 in. wide; petioles 1 in. long. Stipules lanceolate, long acuminate 1 in. long. Cymes puberulous, lax, spreading peduncle 2 in. long; branches 1.5 in. long, 3 or 4. All covered with appressed whitish hairs. Cymules 2 of 4 or 5 flowers, with a single flower on the central branch. Calyx campanulate with short obscure rounded lobes .1 in. long. Corolla white .2 in. long; lobes coriaceous ovate-lanceolate, acute.

In the woods of Berastagi.

Near *U. corymbosum* Korth; but with much larger elliptic leaves, corymbs and flowers.

Urophyllum macranthum Ridl. n. sp.

A tree; branches glabrous. Leaves elliptic to lanceolate, long acuminate, base round or shortly narrowed, thin coriaceous, glabrous; nerves about 10 pairs, 5 in. to 1.5 in. wide; petioles .2 in. long. Stipules lanceolate acuminate, very narrow, hairy. Cymes .5 in. long, hairy, of 4 or 5 flowers. Bracts lanceolate cuspidate, hairy; pedicels .15 in. long. Calyx large, cup-shaped, hairy, .4 in. long; lobes very obscure rounded, dull grey-green. Corolla-tube little longer: lobes narrow oblong, .25 in. long, white, mouth of tube white hairy. Fruit globose, hairy, narrowed at the top terminated by the calyx-tube.

In the lower woods, Berastagi. Remarkable for the large size of its flowers, the largest in the genus.

Petunga Roxburghii DC.

Hill forest, Berastagi. *Distrib.* Indo-Malaya.

Petunga hirta Ridl. n. sp.

Shrub; stem shortly densely hairy. Leaves lanceolate, cuspidate acuminate, base narrowed, thinly coriaceous; nerves 7 to 8 pairs slender, above glabrous, beneath hairy on the midrib and nerves, 4.5 in. long, 1.75 in. wide; petiole .2 in. long densely hairy. Stipules triangular acuminate, base and keel hairy .2 in. long. Spikes dense .3 in. long; peduncle, bracts and calyx densely yellow hairy. Bracts lanceolate acuminate. Flowers minute sessile. Calyx shortly 5-lobed; petals 5, oblong blunt pubescent, tube very short with long white hairs on lobes inside; filaments short; anthers linear-oblong with a short point; style and stigma covered with long white hairs.

Sibolangit, Bukit Kluang (Mohamed Nur 7405). The only only hairy species in the genus known to me.

Spiradiclis acuminata Bl. Sibolangit, Dato Pulo Siam valley (Mohamed Nur). *Distrib.* Java.

Stylocoryne sylvicola Ridl. n. sp.

Small tree; branches appressed hairy. Leaves lanceolate cuspidate, base narrowed, coriaceous, above scabrid, glabrous except the midrib beneath, sparsely hairy; midrib and nerves depressed above, elevate beneath, 12 pairs hairy, 6.5 in. long, 2.4 in. wide; petioles .5 in. long. Stipules connate tubular with 2 long points hairy, .3 in. long. Corymb 4 in. across; peduncles 3, hairy 1.5 to 2 in. long. Bracts linear acute, spreading, .2 in. long. Flowers numerous, white, very shortly pedicelled. Calyx-tube globose, hairy, .05 in. long; lobes forming a tube below, 5, very short oblong. Corolla .5 in. long; tube cylindric, hairy; lobes oblong blunt about half as long. Style clubbed, glabrous projecting .5 in. long. Fruit globose, pea-shaped, glabrous, .2 in. through. Seeds very numerous brown, angled and ribbed.

Berastagi woods. Near *S. dasyphylla* Miq., but more hairy with different shaped leaves.

Psychotria montana Bl.

Berastagi woods. *Distrib.* Malay Peninsula and islands.

Psychotria penduliflora Ridl. n. sp.

Shrub, glabrous. Leaves chartaceous elliptic-lanceolate, narrowed to both ends; nerves 12 pairs, 6 in. long, 2 in. wide; petiole 1.5 in. long. Stipules lanceolate papery acute denticulate. Cymes pendulous from the uppermost axils, 2 in. long (peduncle 1.5 in. long) branches few, short. Bracts blunt lanceolate. Calyx campanulate with short pubescent ovate rounded lobes. Corolla .3 in. long, white; tube thick cylindric, lobes broad ovate blunt more than half as long. Stamens partly exsert. Fruit elliptic narrowed to the base, .4 in. long, 12 ribbed, crowned by the tubular calyx.

Berastagi hill woods. Very distinct in its long pendent deflexed cymes.

Psychotria multinervia Ridl. n. sp.

Shrub; stems thick sparsely hairy. Leaves large elliptic or obovate, cuspidate, base cuneate, beneath dotted with minute hairs; nerves 16 pairs and midrib red-pubescent, 7 in. long, 3.5 in. wide; petioles .5 in. long, thick. Stipules large ovate or oblong cuspidate-acuminate 1.25 in. long, .3 in. wide. Cymes 3, dense capitate on a red pubescent peduncle 1.5 to 2.5 in. (in fruit) long. Cyme-peduncles .5 in. long. Bracts linear deflexed .25 in. long. Heads .5 in. through of many flowers, subsessile with persistent lanceolate acuminate bracts. Calyx campanulate, lobes short triangular. Corolla-tube cylindric, .3 in. long, white, mouth white hairy, lobes 5, triangular acute, half as long. Stamens half exsert. Fruit ellipsoid narrowed to the base, 10-ribbed, crowned by the enlarged calyx .4 in. long.

Hill woods, Berastagi.

Chasalia propinqua Ridl. n. sp.

Shrub, glabrous. Leaves thin lanceolate acuminate, base long narrowed; nerves about 8 pairs inarching, 6 in. long, 1.75 in. wide; petiole 1 in. long. Cyme 1.5 in. long and wide; peduncle 1 in. long. Flowers small, white shortly pedicelled. Calyx small, saucer-shaped with acute triangular points. Corolla .3 in. long; tube cylindric slightly curved at top; lobes short, rounded, crisped on the edge .08 in. long. Fruit .4 in. long, pulpy dark claret colour; pyrenes large with one strong rib on the back.

In the hill woods, Berastagi.

I should have referred this to a form of the common *Chasalia curviflora*, Thw., except that the fruit and pyrenes are very much larger than in that species and the flowers smaller.

Cephaelis pauciflora Ridl. n. sp.

Slender unbranched shrub over 12 in. tall. Leaves membranous, lanceolate, cuspidate, base long narrowed; nerves 7 pairs slender, 4 in. long, 1 in. wide; petiole slender .4 in. long. Stipules oblong, convolute, papery, .25 in. long. Peduncle 2.5 in. long, slender. Capitulum .4 in. across, of very few flowers, about 6. Bracts, outer 2 oblong ovate, thin, .25 in. long, inner bracts papery as long as the corolla-tube. Corolla white, .25 in. long. Fruit .3 in. long, blue.

Berastagi hill forests. A very distinct plant in its thin leaves and very small few-flowered heads.

Lasianthus rhinocerotis Bl.

Shrub. Berastagi woods, shrub 3 feet tall.
Distrib. Malay Peninsula and islands.

Lasianthus stercorarius Bl.

Berastagi woods. A small tree.
Distrib. Malay Peninsula and islands.

Lasianthus (*Mephitidia*) vulcanicus Ridl. n. sp.

A small tree. Leaves elliptic caudate, base cuneate, quite glabrous; nerves 7, transverse nervules few, conspicuous, 2.5 in. long, .75 in. wide; petioles slender .1 in. long. Stipules small sheathing at base with a tooth-like point. Cymes sessile of 3 or 4 flowers. Flowers white, very small, barely .1 in. long, subsessile. Calyx obconic; teeth very short. Corolla-tube very short, cylindric; lobes ovate as long or longer. Fruit very small .12 in. through, obconic crowned with the enlarged calyx teeth. Pyrenes 4.

Woods of Sibayak volcano. Allied to *L. lucidus* Bl. A very elegant species with its long caudate leaves.

Knoxia corymbosa Willd.

Berastagi plains. *Distrib.* Indo-Malaya.

Knoxia lineata DC.

Small herb with pale lavender coloured flowers. Common in the lalang fields at Berastagi. *Distrib.* Java, Borneo.

Rubia cordifolia L. var. **javana** Miq.

Hedge banks, Battak village, Berastagi. Common.
Distrib. Java.

COMPOSITAE,

Vernonia javanica DC. var. **conferta** DC.

Woods at Berastagi. A form with leaves very softly tomentose at the back as are the panicle branches.
Distrib. Malay Peninsula and islands.

Vernonia cinerea Less.

Common in open country. The leaves are quite linear to linear lanceolate in the form here. *Distrib.* Tropics generally.

Adenostemma viscosum Forst.

In a wooded ravine, on the south of the plain. Berastagi.
Distrib. Tropical Asia.

Erigeron sumatrense Retz.

Common all over the plateau in lalang.
Distrib. Malay Peninsula and islands.

Microglossa volubilis DC.

Woods, Berastagi. Flowers white.
Distrib. Malay Peninsula and islands.

Lagenophora Billiardieri Benth.

This pretty little miniature daisy dotted the grassy open spots of the plateau. Flowers white.
Distrib. Tropical Asia (wanting in Malay Peninsula).

Laggera alata Schultz-Bip.

In lalang grass: not very common in the plateau. Flowers a beautiful rose pink. *Distrib.* Malay islands.

Dichrocephala latifolia DC.

Open country in damp spots. *Distrib.* Tropical Asia.

Blumea hieracifolia DC.

Open plains, Berastagi. *Distrib.* India, Java.

Blumea lacera DC.

Open plains, Berastagi. Flowers yellow. Involucre purple.
Distrib. Indo-Malaya.

Blumea chinensis DC.

Berastagi (Mrs. Burkill). *Distrib.* Eastern tropics.

Blumea aromatica DC.

Six feet tall. Flowers yellow. Woods on the hills, Berastagi.
Distrib. Malay Peninsula and islands.

Blumea scabrifolia Ridl. n. sp.

Tall plant over 3 feet tall. Stem rather slender, thinly arachnoid. Leaves alternate, distant thinly chartaceous, above scabrid with minute pustules, beneath sparsely appressed hairy; midrib and nerves densely appressed hairy, lanceolate acuminate, narrowed to the base, sessile, edges serrulate, 6 in. long, 1.5 in. wide. Panicle long, lax, 18 in. with a few axillary branches below, silvery woolly; branches 1 to 2 in. distant below, 3 to 5 in. long with a leafy bract at the base of each. Cymes of heads about 2 in. across, lax. Heads .25 in. long; peduncles .3 in. long. Involucral bracts, basal short lanceolate hairy, upper ones linear acute of ten, tipped pink, twice as long. Male flowers .25 in. long. Corolla-tube slender, dilated at tip, lobes ovate. Female flower smaller very slender. Style bifid. Achene linear-oblong ribs about 6, hairy. Pappus .25 in. long, white silky, minutely scabrid.

Berastagi woods.

There are a number of species of *Blumea* described under *Conyza* by Miquel, but I cannot fit this plant to any, though it seems to be nearest to *Conyza Korthalsiana* Miq. of Singalang.

Siegesbeckia orientalis Linn.

In waste ground. Flowers yellow.

Distrib. Weed all over Tropical Asia.

Wedelia asperrima DC.

Woods of Berastagi. *Distrib.* Java.

Bidens pilosa Linn.

Open country in cultivated and waste ground.

Distrib. Tropical Asia.

Spilanthes acmella Linn.

Very common in damp open spots. *Distrib.* Whole tropics.

Enhydra fluctuans Lour.

Rice fields at the base of the volcano, Gunong Sibayak.

Distrib. India, Malaya, China.

Artemisia vulgaris Linn.

Damp spots in ravines in open cultivated country. Flowers white. Leaves white beneath, Berastagi.

Distrib. Most parts of the world, introduced into Malaya.

Anaphalis longifolia DC.

Sporadic on the plateau, not common. *Distrib.* Java.

Erechthites valerianaefolia DC.

Open pastures. A native of South America, according to Hasskarl brought by Governor General Rockussen to Java with Coffee seed from Brazil in 1845. It is now spread over Borneo, Java and the Malay Peninsula.

Gynura sarmentosa DC. var. **longipetiolata.**

This plant differs from typical *Gynura sarmentosa* in having the petioles .1 to .75 in. long, the blade of the lower leaves is almost deltoid serrate acute with a broad base of which the centre is shortly decurrent on the petiole.

In a lane by the Battak village.

Gynura aspera Ridl. n. sp.

Herb erect, 2 feet and more tall, not tuberous, shortly rough hairy, stem ribbed. Leaves membranous, narrow lanceolate acute, coarsely toothed, sessile, rough hairy auricled at the base, 3.75 in. long, .4 in. wide. Capitula about 10, crowded at the top. Involucral bracts glabrous lanceolate linear .25 in. long, brownish with pale edges. Flowers yellow. Corolla-tube very slender, dilate towards the tip .3 in. long. Pappus white, silky .5 in. long, not bearded. Achene narrow linear cylindric with 8 longitudinal ribs with short hairs between.

In long grass on the plateau. There is also a reduced form 5 in. tall with 1 to 3 heads; leaves 1 in. long. This species is allied to *G. malasica* Ridl. and *G. pseudo-China* D.C., but differs in the form of leaves and hairiness.

Emilia sonchifolia DC.

Common in open grassy spots. *Distrib.* Tropical Asia.

Emilia angustifolia DC.

Less common. This has very narrow leaves. Flowers pink. *Distrib.* Philippines.

Lactuca brevirostris Champ.

Common on the open plateau. A handsome plant about 4 feet tall, with pale yellow flowers. *Distrib.* Philippines.

Crepis japonica Benth.

Common on the plateau. *Distrib.* Tropical Asia.

LOBELIACEAE.

Pratia begoniaefolia Lindl.

A common weed in the potato fields, often covering the ground. *Distrib.* India, Malay Peninsula and islands.

Pratia montana Hassk.

Upper woods on Sibayak volcano. Flowers dark blue. *Distrib.* Java.

Lobelia trialata Ham.

Open country, Berastagi. Calyx purple. Corolla pale violet and white. *Distrib.* Indo-Malaya.

CAMPANULACEAE.

Campanumoea celebica Bl.

Lane by the Battak village. *Distrib.* Malay Peninsula and Java.

ERICACEAE.

Gualtheria leucocarpa Bl.

Woods and scrub of the volcano Gunong Sibayak at 7,000 feet alt. Flowers white. *Distrib.* Malay Peninsula and Java.

Rhododendron multicolor Miq.

I picked up a spray of flowers in the woods on the slope of the volcano Sibayak, apparently belonging to this Sumatran species. The flowers were dark red.

There was another Rhododendron there with small lanceolate elliptic very coriaceous leaves 2 inches long and 1.1 in wide opposite. Fruits .5 in. long, on long stalks. It cannot be *multicolor* as the leaves are not whorled, but I saw no flowers.

Rhododendron malayanum Jack.

Gunong Sibayak (Mohamed Nur 7350).

Distrib. Malay Peninsula and islands.

Clethra pulcherrima Ridl. n. sp.

Small tree. Leaves coriaceous, lanceolate acute, base long narrowed, entire; nerves 13 pairs elevate beneath; nervules transverse, rather irregular, glabrous except the young leaves which are pubescent. Racemes in upper axils and terminal, 8 in. long, pubescent. Flowers white, 40 or more in a raceme; pedicels pubescent .5 in. long. Sepals lanceolate acute, reddish, pubescent .3 in. long. Petals slightly longer oblong truncate at top, connate at base, entire. Stamens 10, adnate to corolla at base; filaments shorter than petals narrowed upwards, white hairy; anthers dorsi-fixed elliptic dehiscing by pores at the top. Style long, elongating after the fall of the corolla to .25 in. long, glabrous; stigma capitate. Ovary hairy, 3-celled.

Woods on the lower slopes of the volcano Sibayak at about 6,000 ft. alt. Allied to *C. sumatrana* J. J. Smith, a native of Toba in the same area, but differing in the entire lanceolate leaves, and larger white (not pink) flowers.

PRIMULACEAE.

Lysimachia japonica Thunb.

In cultivated ground, West Hills, Berastagi. Flowers bright yellow. Plant prostrate, covered with white hairs.

Distrib. Japan, India, Philippines.

MYRSINACEAE.

Maesa pyrifolia Miq.

Berastagi woods. *Distrib.* Java.

Maesa latifolia DC.

Berastagi woods. A small tree. Flowers whitish. A striking plant from its very distinct teeth on the edge of the upper part of the leaf. *Distrib.* Java.

Embelia pergamacea DC.

In the low scrub on the Sibayak volcano at 6,000 feet. *Distrib.* Malay Peninsula and Java.

Ardisia fertilis Miq.

Berastagi woods. A tree with white flowers.

Ardisia speciosa Bl.

Berastagi woods. A shrub. Inflorescence dull red. *Distrib.* Java.

Ardisia pterocaulis Miq.

A tall shrub. Flowers pink; fruit white. Berastagi hill woods.

Distrib. Malay islands.

Ardisia Ridleyi King.

Shrub 5 to 6 feet tall. Flowers white; fruits claret-colour. Berastagi woods, on the hills. *Distrib.* Malay Peninsula.

Ardisia (§Pimelandra) megalocarpa Ridl. n. sp.

Shrub 10 to 15 feet tall; branches, inflorescences and midrib beneath shortly densely hairy. Leaves oblong-lanceolate, shortly acuminate, base narrowed blunt or subacute; nerves very numerous, fine and close; nervules and reticulations fine and visible on both sides, thinly coriaceous, pustulate on both sides, 8 in. long, 2.25 in. wide; petiole .5 in. long hairy. Cymes extra-axillary from the branches, 3-flowered; peduncle 1 in. long, hairy. Flowers unknown. Fruit ovoid globose, .3 in. long, ribbed; pedicels stout, .4 in. long, hairy. Sepals ovate acute, .1 in. long, closely glandular outside, the glands in numerous vertical lines on the inside, hairy edges long-haired.

Sibolangit (Mohamed Nur 7354).

I know no species of this section which has such large fruits, nor the curiously dotted and hairy sepals.

Labisia ovalifolia Ridl. n. sp.

Stem woody, rooting erect, 9 in. tall. Leaves ovate elliptic acute, base decurrent on petiole, chartaceous; nerves very numerous fine and parallel; reticulations fine and close, edge bluntly denticulate. scurfy beneath on midrib and pustular beneath, 5 in. long, 3 in. wide; petioles .5 in. long. Panicle racemiform, the lower flowers in short 3 to 4-flowered cymes, upper ones solitary, all scurfy. Peduncle 1 in. long; panicle 1.5 in. long. Bracts minute lanceolate acuminate; pedicel .05 in. long. Calyx-lobes 5 triangular acute scurfy. Corolla ovoid blunt in bud; petals ovate subacute .1 in. long, glandular; style persistent .1 in. long.

Gunong Sebayak (Mohamed Nur 7395). Flowers white. Near *L. pothoina* but with dentate leaf edges and leaves broadly ovate.

SAPOTACEAE.

Payena vulcanica Ridl. n. sp.

Tree 40 to 50 feet tall. Branches much warted with bases of flower-fascicles. Leaves coriaceous, glabrous oblanceolate blunt, base narrowed; nerves 8 pairs elevate above, .3 in. long, 1 in. wide; petiole grooved above, 1 in. long. Flowers in fascicles below the leaves, 5 together; pedicels .5 in. long. Sepals 4, imbricate, ovate pubescent, .1 in. long. Petals as long ovate shortly silky pubescent. Stamens as short as petals 12; anthers ovate-lanceolate acuminate, base cordate; style thick, .25 in. long.

Gunong Sibayak (Mohamed Nur 7326).

STYRACEAE.

Symplocos xanthophylla Jungh. de Vries.

In woods on the Sibayak volcano. *Distrib.* Java.

Symplocos fasciculata Zoll.

One of the commonest trees in the plateau woods and as a fairly big tree for this species.

Distrib. Malay Peninsula and islands.

OLEACEAE.

Jasminum bifarium Wall.

Road from Medan to Berastagi.

Distrib. Malay Peninsula and islands.

Ligustrum robustum Bl.

Lane by the Battak village, Berastagi. *Distrib.* Java.

APOCYNACEAE.

Alyxia Forbesii King.

Woods on the slope of the Sibayak volcano, 6,000 to 7,000 feet alt. *Distrib.* Malay Peninsula and Sumatra.

ASCLEPIADACEAE.

Hoya rhodostele Ridl. n. sp.

Stems moderately stout. Laeves thick; lanceolate acute, base cuneate; nerves invisible, 3 in. long, 1.5 in. wide; petioles thick .5 in. long. Peduncle axillary 4 in. long. Raceme rachis thick .25 in. long; pedicels slender, 1 in. long. Sepals short, ovate blunt. Corolla .5 in. wide, lobes triangular blunt, velvety inside, cream-colour. Staminal column claret colour, lower lobe broad lanceolate, thick, blunt, upper one very short. Berastagi woods.

Dischidia polyphylla Ridl. n. sp.

Long slender climber. Leaves numerous, crowded orbicular oblong to ovate, .25 in. long, .2 in. wide, fleshy; nerves invisible; petiole .05 in. long. Peduncle opposite a leaf, .1 in. long: rachis thickened (sometimes 2) half as long; pedicels short. Sepals rather long lanceolate blunt. Corolla urceolate, lobes erect, subacute, white tipped pink, .1 in. long. Column blunt at top. Anther appendages oblong blunt. Corona scales attached to base of column, anchor-shaped, lobes narrow, recurved. Fruit narrow-linear acuminate 1.5 in. long. Seeds oblong, but acute at base, dark brown, smooth .06 in. long; plume fine silky .5 in. long.

Climbing on trees, Berastagi forests.

Allied to *D. albida* Griff., but the column is not acute but blunt and short, the stamen appendages being broad and blunt.

LOGANIACEAE.

Buddleia asiatica Linn.

Shrub 6 feet tall. Flowers white. Edge of woods on West Hill, Berastagi. *Distrib.* Indo-Malaya.

Fagraea lanceolata Bl.

Berastagi Hill woods. *Distrib.* Java.

Mitrasacme nudicaulis Reinwdt.

Open ground, Berastagi.
Distrib. Malay Peninsula and islands.

GENTIANACEAE.

Crawfurdia Blumei Don.

Upper woods on the base of the volcano Sibayak, at 7.000 feet alt. Flowers white, tube green. *Distrib.* Java.

BORAGINACEAE.

Tournefortia Zollingeri Miq.

Berastagi Woods. *Distrib.* Java.

Cynoglossum javanicum, Miq.

Berastagi plateau, not common but hardly in flower.
Distrib. Java.

Cynoglossum micranthum, Desf.

Berastagi (Mrs. Burkill). *Distrib.* Java.

CONVOLVULACEAE.

Ipomoea obscura Ker.

Toba Lake (Mrs. Burkill). *Distrib.* Malay islands.

SOLANACEAE.

Solanum nigrum Linn.

Berastagi woods. Flowers white. *Distrib.* Cosmopolitan.

Solanum Zollingeri Dunal.

West Hill, Berastagi, scarce. Flowers violet outside, white inside. *Distrib.* Java.

Solanum Blumei Nees.

Shrub, about 3 feet tall. Leaves unequal. Fruit red, out of flower, Berastagi woods.

Solanum torvum Swartz.

Flowers white, open places, Berastagi.
Distrib. Tropical Asia.

Solanum aculeatissimum Jacq.

Near the Battak Village, Berastagi. *Distrib.* Tropical Asia.

SCROPHULARIACEAE.

Bonnaya reptans Spreng.

Base of Sibayak volcano. Flowers pale blue.
Distrib. Tropical Asia.

Buchnera sumatrana Miq.

Common on the plateau, Berastagi. Flowers pale violet.
Distrib. Sumatra only.

Striga lutea Lour.

Open country. Flowers yellow. *Distrib.* Tropical Asia.

Mazus rugosus Lour.

Cultivated ground, Berastagi. Flowers light blue.

GESNERACEAE.

Aeschynanthus fruticosus Ridl. n. sp.

Epiphyte with erect, rather slender angled stems about a foot tall. Leaves fleshy in whorls of 4, ovate lanceolate; nerves invisible, .5 in. long, .25 in. wide; petiole very short or none. Flowers 1 to 4 or 5, terminal; pedicels very slender .25 in. long. Sepals hardly .1 in. long, linear acuminate, free nearly to base. Corolla .75 in. long, deep claret-colour, hairy, tube dilated upwards and curved at the top, lobes short, oblong blunt. Stamens projecting for .2 in. hairy. Capsule .5 in. long, .25 in. wide when split open. Seed minute oblong with a single hair at each end, very fine about .5 in. long.

On trees in the woods near Berastagi. Common and forming large clumps. Allied to *A. tetraquetra* Clarke, of Singaian, but the leaves are much smaller, ovate-lanceolate and entire; pedicels and calyx-lobes longer.

Rhynchoglossum obliquum Bl.

Sibolangit, Bukit Kluang (Mohamed Nur 7437).
Distrib. Java.

Loxonia acuminata Br. Sibolangit (Mohamed Nur).
Distrib. Pulau Tiuman off the Pahang coast (Burkill), Java.

Didymocarpus albina Ridl.

Abundant in the woods on the hills, towards Sibayak. I cannot separate this from the plant of Telom and Semangkok Pass. Some forms took on a pale violet tint but most were white with yellow in the mouth. *Distrib.* Malay Peninsula.

Didymocarpus vulcanica Ridl. n. sp.

Stem woody, tomentose. Leaves crowded, oblong or obovate blunt, base rounded; edge bluntly serrate, above glabrous beneath, midrib elevate, red-villous; nerves 20 pairs elevate, red-villous 5 in. long, 1.75 in. wide; petiole .25 to .6 in. long. Scape 6 in. long, red hairy, with 4 distant pairs of flowers with a pair of lanceolate bracts; pedicels .1 in. long, hairy. Sepals linear hairy .1 in. long; corolla blue .6 in. long, tube gradually dilate from the base; limb .3 in. wide, lobes round, all pubescent. Stamens 2: filaments rather thick, glabrous; anthers linear-oblong, connivent. Ovary lanceolate conic pubescent; style shorter than the stamens; stigma pulvinate.

Bandar Bharu, Gunong Sibayak (Mohamed Nur 7314). Allied to *D. amoena* Clarke and *D. teres* Clarke, of Borneo but distinct from all in the conspicuous pair of bracts at the base of each pair of flowers.

Chirita Blumei C. B. Clarke.

Road to Berastagi from Medan. Flowers white.
Distrib. Java.

Chirita Horsfieldii R. Br.

In the lane by the Battak village. Flowers deep blue. A very beautiful plant. *Distrib.* Java.

These two species are very different in appearance in life, the white-flowered one being much larger and more shrubby than the smaller deep blue-flowered one, but from book descriptions and herbarium specimens it is not easy to distinguish them.

Rhynchotechum angustifolium Ridl. n. sp.

Low shrub, densely appressed, woolly hairy. Leaves alternate, lanceolate acute, long narrowed to the base, obscurely blunt serrulate at the tip, glabrous above except the midrib puberulous, yellowish, appressed hairy beneath especially on the nerves, over 20 pairs, 7 in. long, 2 in. wide; petioles 1 in. or less. Panicles axillary, densely yellow hairy, at first in dense heads, eventually spreading 4 in. long and wide. Bracts lanceolate, narrow hairy, .25 in. long. Flowers in terminal cymes of 2 branches with 3 flowers on each, and 1 to 3 solitary, longer pedicelled flowers between. Calyx-lobes lanceolate, golden-hairy, .1 in. long. Corolla as long, white. Capsule ovoid as long as the sepals: style persistent cylindric; stigma nearly as long, capitate.

Berastagi woods. This has larger fruit and flowers than *R. parviflorum* Bl., and the leaves are quite different.

Cyrtandra pauciflora Ridl. n. sp.

Shrub about 5 feet tall; branchlets and young parts fulvous velvety. Leaves opposite variable, the younger ones lanceolate subfalcate acuminate slightly inaequilateral at base; edges denticulate with a few distant teeth; nerves 9 pairs sparsely hairy on both sides except the nerves and midrib densely hairy beneath, 6 in. long by 1.5 in. wide; larger leaves oblong, 10 in. long, 3.5 in. wide, very strongly toothed. Cymes axillary, .75 in. long; peduncle and branches golden hairy. Flowers 3 or 4 together, dirty white. Bracts 2, lanceolate, leaf-like, 3-nerved hairy, .25 in. long. Calyx-tube campanulate with 5 linear subulate teeth .12 in. long. All hairy. Corolla .6 in. long, dirty white with brown streaks in the mouth, pubescent, tube thick, cylindric, limb .4 in. wide, lobes round. Fruit elliptic, narrowed to the top, hairy cuspidate with the style base .5 in. long, .1 in. through.

In a wooded ravine, Berastagi. Allied to *C. rostrata* Bl. of Sumatra, but the calyx-lobes long and very narrow, and the corolla not golden hairy.

Cyrtandra Sandei De Vriese.

I collected fruiting specimens of a plant either this or very near it in the woods. It is a native of Java and Sumatra.

Cyrtandra pandurata Ridl. n. sp.

Shrubby. Leaves obovate decurrent to the base with a broad winged petiole, base rounded, broad, edge serrate, glabrous except the midrib beneath, nearly pubescent; nerves 8 pairs, slender, 8 in. long, 4 in. wide. Flowers clustered; bracts small, lanceolate. Calyx goblet-shaped, glabrous, entire with minute points .4 in. long. Corolla white, 1.25 in. long, tube cylindric; limb .3 in. wide, hairy, lobes rather broad, rounded.

Berastagi woods. This belongs to the section *Coccineae* with a tubular calyx with very short points. The leaves are peculiar in being fiddle-shaped, the base is broad and rounded, above is an oblong winged petiole 3 in. long, 1 in. wide passing into an obovate lamina.

ACANTHACEAE.

Strobilanthes Maingayi C. B. Clarke.

Berastagi woods. A bush with white flowers. This is not exactly like the type form from Penang; it has more rigid, rather smaller leaves, and stiffer lanceolate bracts, but I am unwilling to separate it specifically.

Distrib. Malay Peninsula.

Strobilanthes hirticalyx Ridl. n. sp.

Shrub, hairy. Leaves membranous, lanceolate, narrowed at both ends, decurrent on petiole, edges crenulate-sinuate; nerves 8 pairs, slender, sparsely white hairy on both sides; nerves and midrib on both sides, rough hairy, 3 in. long, 1 in. wide; petiole slender .75 in. long, white hairy. Peduncles terminal .25 in. long or less. Heads .5 in. across of few flowers, outermost bracts ovate lanceolate, .3 in. long, .12 in. wide, inner ones lanceolate to linear, as long, all white hairy. Sepals linear blunt, hairy, .25 in. long in fruit. Corolla white, gradually dilate upwards .5 in. long, .25 in. across the mouth, lobes round, sparsely hairy. Stamens 2, filaments slender, sparsely hairy at base. Anthers elliptic. Capsule .15 in. long, pale fawn, hairy, valves lanceolate in outline pubescent especially at the tip. Seeds flat, ovate orbicular hairy.

Berastagi Woods.

Very near a plant collected by Zollinger in Java, *Iter secundum* II. 3801, but this has coriaceous leaves with fewer nerves. Mohamed Nur, who got what appears to be the same plant at Sibolangit (No. 7356), gives the colour of the flowers as blue; they were white at Berastagi.

Strobilanthes multiflora Ridl. n. sp.

Glabrous shrub with slender branches. Leaves lanceolate or elliptic-lanceolate, long acuminate, base cuneate, edge blunt serrulate; nerves 8 pairs ascending to the points, 3.5 in. long, 1.5 in. wide; petiole .5 in. long. Racemes or panicles axillary and terminal, lax with few flowers. Bracts very small less than .1 in. long, linear blunt. Flowers solitary. Sepals linear blunt, one a little longer than the other, .2 in. long in flower, lengthening to .25 in. long in fruit. Corolla white, trumpet-shaped, 1 in. long; limb .5 in. wide, lobes rather short round. Stamens four, included; anthers elliptic, 1 cell slightly below the other in the upper pair. Style moderately stout, narrowed to the tip.

Berastagi woods.

Allied to *S. capillipes* Nees and *S. sumatrana*, Miq.

Strobilanthes anceps Ridl. n. sp.

Glabrous shrub; branches flattened and winged. Leaves stiffly coriaceous, elliptic narrowed at base, shortly acuminate at the tip, edge serrulate; nerves 9 pairs sunk above as are midrib and reticulations, elevate beneath, 6 in. long, 3 in. wide; petiole 2 in. long, channelled above. Spikes axillary, 4 in. or more long. Flowers white in opposite pairs. Bracts caducous, narrow linear, .12 in. long. Sepals linear narrow, blunt .5 in. long. Corolla 1.25 in. long, tube at base cylindric, then rather suddenly dilate curved; lobes blunt .25 in. long. Stamens 5.

Berastagi Woods.

Allied to *S. collina* Nees, but quite glabrous.

Justicia virescens Ridl. n. sp.

Slightly shrubby herb, glabrous. Leaves ovate or elliptic acuminate, base cuneate, thinly membranous; nerves 6 pairs, slender, 4 to 4.5 in. long, 1.25 to 1.75 in. wide; petioles 1 to 2 in. long. Spike terminal, solitary or 2, pubescent 2 in. long. Bracts short linear acuminate, pubescent. Sepals lanceolate linear acuminate hairy, .05. Corolla greenish-yellow .5 in. long, tube thick, upper lip ovate cuspidate, lower lip oblong, longer, blunt, ribbed on the disc. Stamens shorter than the upper lip; anthers not parallel.

In woods, Berastagi.

Eranthemum sumatrense Ridl. n. sp.

Bush about 5 feet tall. Leaves membranous, elliptic, narrowed at base, acute; nerves about 7 pairs, 7 in. long, 2.5 in. wide; petiole .6 in. long. Raceme dense, 6 in. long on a peduncle 1.5 to 3 in. long. Flowers in fascicles of 6 or more, scattered at the top. Bracts short, narrow linear acuminate. Sepals linear acuminate. Corolla-tube cylindric, puberulous 1.5 in. long; lobes elliptic-oblong, blunt rounded at tip .25 in. long, white; lip wider, oblong top rounded, white, base and centre mauve. Stamens exsert curved, black, base subacute.

In wooded ravine, Berastagi.

This suggests *E. Andersoni* at first sight, but the flowers are smaller and the petals plain white, not spotted, and the lip mauve, the petioles are also shorter.

Peristrophe tinctoria Nees.

In the Berastagi woods. *Distrib.* Indo-Malaya.

Hypoestes tenuifolia Ridl. n. sp.

Herb over a foot tall, slender, with rather long, soft hairs. Leaves membranous, ovate-elliptic, shortly blunt acuminate, base cuneate, sparsely hairy above, closely hairy on the midrib, and 4 pairs of nerves beneath, 4 in. long, 2.75 in. wide; petiole 1 in. long, hairy. Inflorescence .5 in. long on a peduncle .5 in. long, terminal and in the upper axils. Bracts membranous, green few leaf-like, upper ones linear-oblong, white hairy. Calyx of 5 free linear acute glabrous sepals. Corolla pale pink, tube cylindric, hairy, .25 in. long, lobes oblong, blunt, rounded equal and similar, .5 in. long. Stamens 2, glabrous, exsert from mouth of corolla .1 to .8 in.; anthers 1-celled; style slender as long as stamens.

Berastagi woods. A very soft, weak plant with foliaceous bracts.

VERBENACEAE.

Vitex trifolia Linn. fil.

Common in open country, Berastagi, near the Battak village and in cultivated ground. Probably introduced there.

Distrib. Tropical Asia.

Callicarpa longifolia Lam.

In a lane by a Battak village. Fruit white.
Distrib. Tropical Asia.

Callicarpa eriophylla Ridl. n. sp.

Bush about 4 feet tall, tomentose. Leaves chartaceous oblong-lanceolate, acuminate, base broad, rounded, edge denticulate, thinly closely hairy above, white woolly with stellate hairs beneath; nerves thick, 8 pairs, 3.5 in. long, .6 in. wide: petiole very short, .1 in. long or less, woolly. Cymes in each leaf axil .5 in. wide; pedicels .2 in. long in flower .25 in. long in fruit. Flowers deep mauve violet. Calyx cup-shaped, tomentose. Corolla funnel-shaped, base narrow, dilate upwards, .05 in. long, lobes short. Stamens longer; anthers oblong. Style longer. Fruit globose, pink, .1 in. through.

Abundant in the open country among lalang. A very pretty shrub with its white leaves and bright coloured flowers and fruit.

Distrib. Java, De Vriese in Herb. Kew.

Callicarpa arborea Roxb.

Sibolangit, Bukit Kramat Kuda (Mohamed Nur 7264).
Distrib. Malay Peninsula.

Clerodendron microcalyx Ridl. n. sp.

Tree 15 to 20 feet tall; branches scurfy, velvety, 4-angled. Leaves thin, ovate, subacute, base broad, subtruncate rounded; nerves 6 pairs spreading, scurfy-velvety 6 to 9 in. long, 5 to 8 in. wide; petiole 7 in. long. Corymbs 2 in. wide: peduncle 1.5 to 3 in. long, densely tomentose velvety. Flowers numerous crowded, white sessile. Calyx .1 in. long, tubular-campanulate, velvety with very short acute teeth. Corolla glabrous, tube slender .5 in. long, lobes oblong, blunt, scabrid outside .1 in. long. Stamens filaments glabrous filiform exsert, .2 in. long (twice as long as corolla-lobes). Fruit pyriform to subglobose, glabrous .25 in. through. Calyx short, saucer-shaped .1 in. deep, with 5 minute teeth.

Sibolangit, Bukit Semaik. Tree 15 to 20 feet. Fruit green; flower white (Mohamed Nur 7447). Allied to *C. villosum,* Bl. but with very small calyx lobes and bracts.

Clerodendron bracteatum Wall. var. **sumatranum.**

Bracts much smaller than in the Indian form. A bush. Flowers white. Edges of woods on hills, Berastagi.
Distrib. Indo-Malaya.

LABIATAE.

Moschosma polystachyum Benth.

Open country in damp spots. Flowers white.
Distrib. Africa, India, Malaya, Australia.

Dysophylla auricularia Hassk. var. **montana** Ridl.

Plant 12 in. or less tall, very hairy. Leaves very close-set, .3 in. apart, numerous. Spike 1 to 1.5 in. long. A very short compact form, very different in appearance to the tall lowland one. In damp spots by streams, open country, Berastagi plateau.

Anisomeles ovata R. Br.

Lake Toba, (Mrs. Burkill). *Distrib.* Indo-Malaya.

Leucas zeylanica R. Br.

In the lalang fields, not very common, Berastagi. *Distrib.* India, Malaya.

Microtaenia cymosa Prain.

Berastagi woods. Upper lip maroon, lower one yellow. *Distrib.* India, Java.

Pogostemon battakianum Ridl. n. sp.

Herb over a foot tall, hairy all over. Leaves rhomboid, base long cuneate, subacute with 2 short broad acute side lobes and several broad teeth; nerves 4 pairs, fine with numerous nervules, sparsely hairy on both sides, more densely so on the nerves beneath, 3 in. long, .2 in. wide; petiole 1 in. long, hairy. Flowers in dense heads in upper axillary and terminal spikes, one inch long, hairy. Calyx sessile, elongate campanulate, 5-toothed and 5-ribbed, white hairy, especially at the top, teeth deltoid acute, .1 in. long. Corolla .1 in. long, violet, tube as short as the calyx, very small, lips very small, subequal rounded. Stamens exsert 4. Style slender, as long; stigmas 2, filiform, recurved. Ovary 2-lobed.

In a lane at the Battak village, Berastagi, in thick herbage. This plant is remarkable for its rhomboid leaves resembling those of *P. formosanum* Oliv., of Formosa. The inflorescence is like that of *P. Heyneanum* Benth., but the flowers are much smaller.

Salvia plebeia R. Br.

Weed in cultivated ground. Flowers purplish. *Distrib.* Indo-China.

Gomphostemma phlomoides Benth.

About three feet tall. Flowers creamy-white. Berastagi woods. *Distrib.* Java.

Gomphostemma sumatrense Ridl. n. sp.

Stem rather slender. Leaves membranous, glabrous except the puberulous nerves beneath and edge, ovate acuminate, base cuneate, edge minutely serrulate hairy; nerves 7 pairs, slender, 7 in. long, 3 in. wide; petiole puberulous, 1.25 in. long, slender. Cymes of about 10 flowers. Bracts minute ovate, puberulous. Calyx goblet-shaped, sessile, glabrous, .25 in. long with very short teeth. Corolla-tube .5 in. long, slightly dilate at base, cylindric, glabrous, upper lip oblong blunt, white hairy, .12 in. long, outside lower lobes shorter, all glabrous within. Nucules glabrous.

Berastagi woods.

Allied to *G. luzonense* Elmer, but the leaves less toothed and calyx-lobes much shorter.

Gomphostemma membranifolium Miq.

Flowers light yellow. In Berastagi woods. *Distrib.* Java.

PLANTAGINACEAE.

Plantago major Linn.

A small form in cultivated ground, Berastagi.

Distrib. Europe and temperate Asia, no doubt introduced, but I have never seen it in the Malay region before.

AMARANTACEAE.

Amaranthus viridis Linn.

Western Hill. Cultivated ground. *Distrib.* All tropics.

Achyranthes bidentata Bl.

In forests, Berastagi. A very hairy form; stem and leaves covered with thick hair. Spikes purple red when young.

Distrib. India, Malaya.

Achyranthes diandra Roxb.

Berastagi woods. *Distrib.* Ceylon.

PHYTOLACCACEAE.

Phytolacca octandra Linn.

Flowers deep pink. Not rare, in the woods near cultivated ground. *Distrib.* South America. No doubt an alien.

POLYGONACEAE.

Polygonum minus Huds.

In ricefields below Sibayak volcano.

Distrib. Europe, Asia, Java, Malay Peninsula, Africa.

Polygonum hydropiper Huds.

Low swampy spots in the plateau, Berastagi.

Distrib. Europe, Asia.

Polygonum perfoliatum Linn.

Scandent thorny. Fruits blue. In thickets, Berastagi plateau.

Distrib. China, India, Java.

Polygonum paniculatum Bl.

Bandar Bharu, Sibayak (Mohamed Nur 7329).

Distrib. Java.

Polygonum chinense Linn. var. **latifolium** Miq.

Common in woods all over the district covering the ground in the wooded slopes of Sibayak volcano.

Distrib. of the var. Sumatra, but of the species all tropical Asia.

BALANOPHORACEAE.

Balanophora sp.

I found a *Balanophora* in the west hill woods at Berastagi, but in too young a state for identification.

ARISTOLOCHIACEAE.

Thottea hirsuta Ridl. n. sp.

Shrub; stems hairy. Leaves oblong acute, base narrowed, 2 basal nerves running parallel to the edge for some way; nerves from midrib 8 pairs elevate, parallel, above glabrous, beneath thickly rough hairy, 8 in. long, 4 in. wide; petiole thick densely rough hairy on back, more sparsely on inner face. Raceme 1.5 in. long, rufous-hairy. Basal bracts distant oblong-lanceolate, .1 in. long, rufous-hairy, upper ones narrower linear hairy on the back. Flowers about 10, white and back pink; pedicels .25 in. long, hairy. Calyx .5 in. long, campanulate, tube stout, limb obscurely, bluntly 3-lobed hairy outside, scabrid inside. Stamens 12 in 2 rows; filaments short, connective broad. Stigma rays 6, linear.

Sibolangit (Mohamed Nur).

Near *T. tricornis* Maing., but hairy. The flowers when dry densely yellowish red-hairy, and the calyx-lobes not acute.

PIPERACEAE.

Zippelia lappacea Benn.

Sibolangit, Bukit Kluang (Mohamed Nur).

Distrib. Malay Peninsula and islands.

Piper caninum Blume, var. **lanatum.**

Scandent on trees, spikes greenish white. Berastagi woods.

Distrib. Malay Peninsula and islands.

Piper (Cubeba) philodendron Ridl. n. sp.

Stout plant with large lanceolate sheath to bud. Leaves ovate cordate with a deep sinus, lobes rounded; nerves radiating from sinus 13, all forked half way with a side branch above the fork on one side; nervules at edge terminating in loops, above quite glabrous, beneath thickly dotted over with small hairs; nerves thickly hairy 7 in. long, 9 in. wide, lobes i.e. side of sinus 2.5 in. long; petiole 8 in. long, hairy. Spike thick over 2.5 in. long on a pedicel 1 in. long, glabrous. Bracts oblong ciliate. Ovaries conic sessile with lobed recurved stigmas. Young fruit ellipsoid with a distinct thick stalk.

Berastagi woods. There is a leaf specimen of this from Sumatra collected by Korthals and named *Piper mollissimum* Miq. but this species is quite different from the Java plant in its larger, less woolly leaves and deep and wide sinus.

Piper (Eupiper) melanocarpum Ridl. n. sp.

Slender glabrous plant, scandent. Leaves thin, chartaceous, elliptic acuminate acute, base cuneate inaequilateral; nerves one pair from base and another from .15 in. above the base, decurrent on the midrib; nervules transverse, rather distant, all visible above on both sides when dry, 3.25 in. to 4.25 in. long, 1.5 to 2.10 in. wide; petioles 1 to 2 in. long. Male spikes slender, 1.5 in. long, on a peduncle .3 in. long. Female spikes shorter, lengthening to .5 in. in fruit. Bracts oblong with rounded tip. Ovary immersed with very short cylindric style and 2 recurved short stigmas. Fruit sessile, globose .1 in. long, black.

Climbing on trees, Berastagi woods.

Piper (Eupiper) salticola Ridl. n. sp.

Climber. Branches .1 in. through, glabrous. Leaves fleshy, light green, ovate subacute, base cuneate unequal; nerves all from the midrib slender, transverse nervules rather distant, 3.5 in. wide; petiole 1 to 1.25 in. long. Spikes opposite the leaves; peduncles .25 to .5 in. long. Male and female spikes both 3 in. long. Males in upper part of branch, females below. Bracts rounded oblong peltate with a short, thick stalk with a few trichomes. Stamen 1; filament broad quadrate: anther cells apical, separate. Stigmas capitate. Ovary conoid. Fruit sessile globose .1 in. through when dry.

Abundant on trees in the forests, Berastagi.

It is possible that this is the *P. quinqueangulatum* Miq., but I have seen no specimens of that Javanese plant and Miquel's description is very incomplete.

Piper nigrescens Bl.

Sibolangit (Mohamed Nur 7254). *Distrib.* Java.

Piper Betle Linn.

On trees near villages. Berastagi.

Distrib. Malay Peninsula and islands usually cultivated.

Piper coactile Ridl. n. sp.

Moderately stout climbing and rooting pepper, brown, felted hairy. Leaves ovate blunt or shortly acute acuminate, base round slightly cordate, glabrous above except midrib and nerves, densely felted tomentose on midrib, nerves, nervules and reticulations beneath and sparsely hairy on whole surface beneath; nerves 3 pairs from base, 1 pair from midrib .5 in. above base, not ascending to tip of leaf, 3 in. long, 2 in. wide; petioles .2 in. long, densely felted tomentose. Stipules narrow linear .5 in. long, hairy. Spikes male only seen? peduncles hairy slender .6 in. long, spike slender .6 in. long, glabrous. Bracts orbicular, peltate with a thinner edge, very small.

Berastagi forests. I am unable to match this with any species but unfortunately could only get young male spikes. I believe it belongs to the Eupiper section. It is remarkable for the woolly felted hairs on the stem and leaves.

Piper subpeltatum Willd.

Sibolangit, Bukit Kluang (Mohamed Nur 7445).

Peperomia laevifolia Miq.

Epiphytic on trees in the hill woods. Common.

Distrib. Sumatra and Java.

Peperomia reflexa Dietr.

Woods on the slope of the Sibayak volcano.

Distrib. Tropical Asia.

Peperomia convexa Bl.

Epiphyte green flowered, Berastagi woods. *Distrib.* Java.

CHLORANTHACEAE.

Chloranthus brachystachyus Bl.

Berastagi woods and lower woods of Sibayak volcano. Berries red.

Var. **melanocarpa.** Leaves broader, dentate, not serrate; stipules larger and fruit black. Shrublet 2 feet tall, West Hill, Berastagi. *Distrib.* of type Indo-Malaya.

Chloranthus officinalis Bl.

Bandar Bahru, Gunong Sibayak (Mohamed Nur).

Distrib. Malay Peninsula and islands.

MONIMIACEAE.

Kibara grandifolia Merrill.

Sibolangit (Mohamed Nur 7203). Flowers yellow, fruits black.

Distrib. Philippines.

LAURACEAE.

Beilschimiedia sumatrensis Ridl. n. sp.

Tree; branches slender, scurfy. Leaves thin, chartaceous, elliptic-lanceolate, long acuminate blunt, base shortly cuneate, glabrous except midrib beneath scurfy in young leaves; nerves 16 pairs elevate beneath; midrib rather stout; reticulations prominent on both sides, 6 in. long, 2 in. wide; petioles .1 in. long. Panicles axillary scurfy, puberulous 2 to 4 in. long, basal half or more nude; branches few, 1 in. long, with few terminal flowers. Pedicels .15 in.

long. Perianth lobes 6 or 7 oblong rounded at tip, equal, rather fleshy tomentose on both sides, .1 in. long. Stamens in 3 whorls; anthers all introrse, 2-celled, outer row 6 or 7 adnate at base to perianth lobes; filament broad, short oblong tomentose, 2nd row slightly longer; anther-cells dehiscing on the edges, with two short broad glands resembling staminodes at the base. Third row much shorter from mouth of perianth-tube; filaments short, broad, tomentose; anther abortive, ovate, thin at the edges. Pistil conic, sunk in the tube, free, vertically grooved.

In woods, Berastagi.

I cannot match this with any species, the leaves are thin for the genus, even when apparently adult.

Litsea perakensis Gamble.

Tree, Berastagi. Only in young fruit.
Distrib. Malay Peninsula.)

Litsia cuneata Bl.

Big tree, Berastagi in fruit, also Sibolaugit, Bukit Klang (Mohamed Nur 7417). *Distrib.* Java.

ELEAGNACEAE.

Eleagnus latifolia var. **ferruginea** Rich.

Berastagi. Edges of woods and open country. Common in Java.

LORANTHACEAE.

Dendrophthoe ignea Scheff.

Sibayak volcano at 6,000 feet alt. Whole plant rusty red.
Distrib. Java.

Loranthus Lyndenianus Zoll. (*Phaenicanthemum Lyndenianum* Zoll.).

Leaves with red midrib beneath. Flowers red. Berastagi.
Distrib. Java.

Elytranthe avenis Don.

In young fruit only. On trees in the sulphur stream at the foot of Sibayak volcano. *Distrib.* Java, Malay Peninsula.

PROTEACEAE.

Helicia obovata Benn.

Sibolangit, Bukit Kluang (Mohamed Nur 7416).
Distrib. Java.

EUPHORBIACEAE .

Breynia rhamnoides Muell.

Near Battak village, Berastagi.
Distrib. Malay Peninsula and islands.

Breynia microphylla Bl.
Small tree, Berastagi. *Distrib.* Java.

Breynia angustifolia Hook. fil.
Small tree; fruits red, Berastagi. *Distrib.* Malay Peninsula.

Antidesma Bunius Spreng.
Sibolangit, Bukit Kluang. Fruit reddish, cultivated (Mohamed Nur 7414). *Distrib.* Malay islands.

Claoxylon longifolium Muell.
Berastagi woods. Shrub or tree; fruits green. *Distrib.* Malay Peninsula and islands.

Claoxylon indicum Hassk.
Sibolangit, Bukit Kluang (Mohamed Nur). *Distrib.* Indo-Malaya.

Acalypha brachystachya Horn.
Weed in cultivated ground, Berastagi. *Distrib.* Java.

Macaranga denticulata Muell.
Sibolangit, Datoh Pulo Siam (Mohamed Nur 7204). *Distrib.* Indo-Malaya.

Homalanthus populifolius Gray.
Berastagi woods. Common. *Distrib.* Indo-Malaya.

URTICACEAE.

Trema rigida Bl.
Tree, Berastagi woods. *Distrib.* Java.

Trema (Parasponia) rugosa Bl.
Berastagi, open country. A common shrub. Flowers reddish. *Distrib.* Java.

Trema (Parasponia) lancifolia Ridl. n. sp.

Tree; branchlets white hairy. Leaves lanceolate acuminate, base narrowed and rounded, edge serrate, membranous, sparsely hairy above, pustulate with longer hairs on midrib and nerves, beneath grey pubescent, areolate; nerves more hairy; nerves 3 from the base, central one (midrib) with 5 pairs of nerves transverse nervules and reticulations numerous, 8 in. long, 2 in. wide; petioles 1 in. long. Stipules lanceolate acuminate caudate, keeled, glabrous. Cymes axillary 2 to 3 in fascicles hairy .5 in. long. Bracts lanceolate acuminate, cuspidate, keeled, glabrous .05 in. long. Flowers crowded in the ends of the cyme; branches subsessile. Sepals 4, oblong acute, puberulous. Stamens 4; anthers ellipsoid orbicular, on filaments no longer than themselves. Pistillode of a large obovoid stigma nearly as big as an anther on a very short style. Female flowers and fruit not seen.

Berastagi woods.

Distinct from other species in the long narrow thin leaves and long petioles. The genus *Parasponia* Miq. seems little distinct from *Trema*, and is now generally reduced to it.

Ficus stipata King.

Sibolangit, Dato Puloh Siam valley (Mohamed Nur 7206).
Distrib. Sumatra. I have not seen a specimen of the type.

Ficus subulata Bl.

Berastagi, also Gunong Sibayak (Mohamed Nur 7398). Figs orange, the form of these plants is that of one I collected in Kelantan with few, much arched, prominent nerves.
Distrib. Malay Peninsula and islands.

Ficus urophylla Wall.

Berastagi woods. *Distrib.* Malay Peninsula and islands.

Ficus rostrata Lam.

Sibolangit, Bukit Pasang (Mohamed Nur 7249).
Distrib. Indo-Malaya.

Ficus cuspidata Reinwdt.

Berastagi Woods. *Distrib.* Java.

Ficus singalana King.

Berastagi Hill forests climbing on trees. The figs are probably the largest in the genus being oblong, six inches long and three inches through, green with white spots; the receptacle walls are an inch thick, white inside, and the flowers pink.

Ficus lepicarpa Miq.

Tree; figs, green. Berastagi woods.
Distrib. Java, Malay Peninsula.

Ficus D'Albertisii King.

Sibolangit, Bukit Kluang (Mohamed Nur). *Distrib.* Papua.

Ficus ribes Miq.

Sibolangit, Bukit Semaik (Mohamed Nur 7372).
Distrib. Java.

Ficus Vriesiana Miq.

Berastagi woods. A tree with whitish fruits in clusters and spikes on the trunk. Leaves hairy beneath. I am not quite certain of this as I have seen no other specimens. *Distrib.* Java.

Ficus toxicaria L.

Berastagi. What I take to be the same plant in a younger state of foliage has chestnut red hair all over the shoot and petiole, the blade of the leaf strongly lobed, and the nerves beneath covered thickly with coppery hair, on a white silky ground. The fruit is pink. *Distrib.* Sumatra only.

Ficus diversifolia Bl.

Berastagi, and on the volcano Sibayak.

The plants from the latter spot have obovate leaves and bluntly lanceolate, acuminate ones on the same spray.

Distrib. Malay Peninsula and islands.

Ficus inaequilatera Ridl. n. sp.

Shrub; branches hairy above, glabrescent below. Leaves chartaceous very inaequilateral, oblong, long cuspidate, base unequally cordate, edge coarsely dentate, above scabrid; midrib and nerves hairy, beneath; nerves about 9 pairs, transverse nerves and nervules hairy, 7 in. long, 3 in. wide; petioles .25 in. long, thick, densely hairy. Stipules lanceolate acuminate, caudate, glabrous except the hairy keel .25 in. long. Figs axillary clustered, roughly hairy when young, on short rough pedicels; adults .2 in. through, globose scales of mouth short, broad lanceolate. Male flowers not seen. Females stalked. Sepals 4, very narrow linear. Achene rounded elliptic oval, blunt. Style lateral.

Berastagi. Also at Sibolangit. Datoh Pulau Siam valley (Mohamed Nur 7209). The foliage resembles that of *F. hypogaea*, but the figs are borne on the stem of the plant. not on prostrate shoots.

Conocephalus suaveolens Bl.

Sibolangit, Datoh Puloh Siam (Mohamed Nur 7387).

Distrib. Malay Peninsula and islands.

Conocephalus amoenus King.

Sibolangit (Mohamed Nur 7237).

Distrib. Malay Peninsula and islands.

Conocephalus Scortechinii King.

On Sibayak volcano. Epiphyte. Flowers pink and white.

Distrib. Malay Peninsula and islands.

Laportea stimulans Miq.

Berastagi, also collected by Mohamed Nur in Datoh Puloh Siam valley. Sibolangit, 7201. Fruit blue.

Distrib. Malay Peninsula and islands.

Laportea crenulata Gaud.

Sibolangit, Bukit Kluang (Mohamed Nur). *Distrib.* Malaya.

Girardinia hibiscifolia Miq.

Berastagi, open places. *Distrib.* Java.

Pilea stipulosa Miq.

Berastagi woods. *Distrib.* Java.

Pilea smilacifolia Wedd.

Bandar Bahru, Gunong Sibayak (Mohamed Nur).

Distrib. Indo-Malaya.

Pilea miconiaefolia Miq.
Berastagi woods. *Distrib.* Java.

Elatostemma frutescens Bl.
Sibolangit, Dato Puloh Siam Valley. (Mohamed Nur 7295). *Distrib.* Java.

Elatostemma macrophylla Brngn. var. **paludosum.**
Berastagi woods. *Distrib.* Java.

Procris peduncularis Bl.
Epiphyte. Berastagi woods. *Distrib.* Java.

Pouzolzia viminea Wedd.
Road from Medan to Berastagi.
Distrib. Java, Malay Peninsula.

Pouzolzia hispida Benn.
Abundant in damp shady spots, Berastagi.
Distrib. Malay Peninsula at Telom, Java.

Pouzolzia pentandra Benn. var. **alienata.**
Lane by Battak village, Berastagi.
Distrib. India, Malay Peninsula and islands.

Leucosyke capitellata Wedd.
Sibolangit, Bukit Kramat Kudah (Mohamed Nur).
Distrib. Java.

Villebrunea integrifolia Gaud.
Shrub; fruits white; Sibolangit, Bukit Kluang (Mohamed Nur).

Distrib. Indo-Malaya.

Boehmeria malabarica Wedd.
Sibolangit (Mohamed Nur). *Distrib.* Indo-Malaya.

Boehmeria platyphylla Don.
Sibolangit, Bukit Semaik (Mohamed Nur).
Distrib. Indo-Malaya.

CUPULIFERAE.

Quercus turbinata Bl.
Sibolangit, Bukit Semaik (Mohamed Nur 7378).
Tree 40 to 50 ft. tall. *Distrib.* Java.

ORCHIDACEAE.

Oberonia elongata Ridl. n. sp.

Stemless. Leaves about 4, the largest 3.5 in. long, .12 in. wide, sword-shaped acuminate. Spike 12 in. long, graceful. Flowers very small, 2 or 3 together, pale green, numerous. Bracts longer than flower, lanceolate-acute, toothed. Sepals oblong-ovate. Petals similar and nearly as large. Lip boat-shaped obscurely 3-lobed when flattened out with short processes on the tip, yellow. Fruit oblong .1 in. long; pedicel nearly as long.

Berastagi on trees.

Microstylis sumatrensis Ridl. n. sp.

Stem fleshy, 6 in. long, purple. Leaves 4, membranous, ovate acute; narrowed to a petiole; nerves 5, purple beneath, 6 in. long, 2.5 in. wide. Scape 18 in. long, base 10 in., nude. Flowers .12 in. wide, resupinate. Bracts lanceolate acuminate, longer than the flower. Pedicel and ovary short, strongly winged. Sepals, upper one linear oblong fleshy involute, laterals oblong blunt, involute fleshy, purplish tipped green. Petals shorter pale linear. Lip entire, fleshy ovate broad with a large deep foveola, all purple, tip narrower, blunt green oblong. Auricles narrow oblong linear curved behind the column and crossing pale. Column very short with a broad clinandrium with 2 distinct but short stelidia. Anther-cup flat orbicular.

Berastagi woods. One plant.

Liparis pratensis Ridl. n. sp.

Terrestrial, base bulbous .25 in. long and through. Leaves about 3, membranous lanceolate acuminate 4 in. long, .2 to .5 in. wide. Scape slender 8 in. tall, floriferous part 3 in. long. Flowers about 20 scattered. 15 in. wide. Bracts narrow lanceolate acuminate, deflexed, .1 in. long. Pedicel and ovary .2 in. long, slender. Sepals upper oblong-lanceolate, broadest at base, lower ones broad, shorter, oblong. Petals linear spathulate, very narrow. All yellow. Lip fleshy, purple, broadly obovate, tip entire, broad, subtruncate with 2 blunt triangular flat calli on the deeply channelled claw. Column arcuate, thickened above.

Berastagi, open country in grassy spots, very local. I only found one patch of about 30 plants.

Eria lorifolia Ridl.

Bandar Bahru, Gunong Sibayak (Mohamed Nur 7343).

Distrib. Malay Peninsula. Kränzlin in the Pflanzenreich reduces this to the totally distinct *E. aeridostachya* Rchb. fil.

Phreatia nana Hook. f.

Berastagi woods on a tree. *Distrib.* Malay Peninsula.

Ceratostylis malaccensis Hook. fil.

Berastagi, and also got on Gunong Sibayak by Mohamed Nur. *Distrib.* Malay Peninsula and islands.

Both specimens are of the same stout and tall form, somewhat resembling *C. sima*, but I do not think this form can be separated from the common slender form.

Ceratostylis scariosa Ridl. n. sp.

Plant 12 in. tall: branched and curved, slender, covered with lanceolate acuminate brown sheaths with white and scarious edges. Leaves thinly coriaceous, lanceolate long acuminate, 3.5 in. long, .25 in. wide. Flowers in short racemes just protruding from the lanceolate sheaths; pedicels very short. Whole flower .3 in. long; ly outside. Petals shorter, oblong-linear, blunt, narrow. Lip lanceolate short, base depressed, subacute. Column short, with 2 very large erect oblong round-tipped stelidia. Anther purple, helmet-shaped, base bilobed, the two cells separate.

Berastagi woods.

Spathoglottis plicata Lindl.

Flowers mauve. Berastagi. Quite the same plant as that of the Malay Peninsula and not the one of Java.

Distrib. Malay Peninsula.

Phaius Blumei Lindl.

Edge of a wood. Berastagi.

Distrib. Malay Peninsula and islands.

Platyclinis gracilis Hook. fil.

Berastagi. Flowers pale green with orange nerves edged brown on lip. *Distrib.* Malay Peninsula.

Dendrochilum lepidum Ridl. n. sp.

Elongate slender-branched plant, internodes 1 in. long, rugose, partly covered with lanceolate blunt sheathing bracts; pseudobulbs cylindric, little dilate at base, 1 in. long, .2 in. wide at base. Leaves oblong-lanceolate, acuminate narrowed at base, 6 in. long, 1.1 in. wide, chartaceous; petioles .3 in. long. Scapes slender filifrom 10 in. long, base for 4 in. nude. Flowers subdistant, .15 in. across, greenish white. Bracts oblong mucronate .08 in. long as long as ovary and pedicel. Sepals and petals lanceolate acuminate. Lip with two erect semi-oval lobes at the base; midlobe very narrowed, tongue-shaped, lanceolate acuminate. Calli 2 on the inside of the basal lobes. Column very short, hood large, oblong truncate, arms longer than the column from halfway.

On trees, Berastagi forests.

Dendrochilum brevilabre Ridl. n. sp.

Stem stout, over 12 in. long, covered with sheaths: pseudo-bulbs oblong cylindric, yellow, 2 in. long. Leaves chartaceous elliptic lanceolate, subacute, base narrowed, 6 in. long, 1.25 in. wide; petiole .75 in. long. Scapes slender 6 in. long, racemose to base. Bracts sepals ovate lanceolate acute, spur short subglobose, all white wool-ovate acute, .05 in. long, much shorter than pedicel and ovary. Sepals lanceolate acuminate; petals similar, .1 in. long. Lip much shorter, broadly obovate, tip broad blunt sub-truncate, 2-keels II at the base running into raised nerves. Column short and thick, arms from the top long, linear acuminate, hood large, broad, lanceolate acute.

Berastagi forests. Allied to *D. album*, Ridl.

Calanthe sp.

A large white-flowered *Calanthe* was not uncommon in the hill forests of Berastagi, but the plants were not in flower. The raceme was velvety and the bracts long and narrow, quite unlike those of *C. veratrifolia* Lindl.

Calanthe unifolia Ridl. n. sp.

Leaf one, broadly elliptic-ovate acute glabrous 12 in. long, 6 in. wide, 7-nerved. Scape 3 feet tall pubescent ; petiole 9 in. long. Raceme 5 in. long. Bracts lanceolate acuminate, 5-nerved, deflexed, lowest 1.5 in., upper ones much shorter. Pedicels pubescent .25 in. long. Flowers .4 in. wide. Sepals oblong, 3-nerved, the lower ones nearly ovate. Petals linear oblong, all greenish-white and minutely pubescent. Lip fleshy .4 in. long, yellow, base thick aduate to column ; limb 4-lobed, lateral lobes oblong truncate spreading, median lobe short, base oblong, apex bilobed, lobes short broad rounded, spur, pendulous cylindric blunt .5 in. long.

Berastagi forests. A single plant. This seems to be allied to *C. chrysoglossoides* Lindl. of Java, at least in having only one leaf. The flowers are fleshy and preserve badly.

Arundina speciosa Bl.

Common in the lalang fields.

Distrib. Java, Malay Peninsula.

Galeola Lindleyana Hook. f.

Berastagi, edge of a wood on the western hills. Plant 5 feet tall, erect with yellow flowers.

Distrib. Himalayas. A new record for the Malayan region. The flowers are rather smaller than those of the Himalayas.

Goodyera casta Ridl. n. sp.

Plant about a foot tall, herbaceous glabrous. Leaves broad lanceolate acuminate, narrowed at the base, 3 in. long, 1.25 in. wide ; petiole .25 in. long, sheath .75 in. long. Raceme about 3 in. long. Bracts large lanceolate acuminate, bright red. Flowers pure white. Sepals ovate acute, upper one .25 in. long, gibbous at base, laterals broadly ovate acuminate. Petals adnate to the upper sepal. Lip large saccate acute, no papillae inside but a thick fleshy keel runs from the base of the sac to the top where it is papillose. Anther-cap lanceolate acuminate, base dilate. Rostellum bifid deeply, lobes narrow linear.

Very rare, a single plant in the hill forests on the way to Sibayak.

Spiranthes australis Lindl.

A tall form a foot high and very narrow linear acuminate leaves.

Open country, Berastagi. *Distrib.* Java.

Hetaeria grandiflora Ridl. n. sp.

Plant 22 in. tall, with long woolly roots. Stem below leaves 6 in. tall. Leaves elliptic-lanceolate acute, shortly narrowed at the base, distinctly 3-nerved, 3 in. long, .75 in. wide ; petiole slender .3 in. long, sheaths ampliate acuminate below, dull red, of leaves shorter. Raceme pubescent, reddish 16 in. long, lower half nude. Flowers about 12, rather distant. Bracts lanceolate acuminate, dull red, .15 in. long. Ovary little longer, hairy. Sepals, upper one oblong-lanceolate blunt, lower ones triangular blunt, all hairy and dull red. Petals glabrous linear, bluntly acuminate, pink. Lip white saccate at base, fleshy narrowed at tip and terminated by two divaricate oblong lobes, .1 in. long, rounded at the tips. Column short ; anther dilate ovate acuminate. Pollen white. Rostellum arms very short. Capsule oblong-elliptic, hairy .25 in. long, perianth persistent.

Berastagi hill woods on the way to Sibayak.

Habenaria lacertifera Lindl.

Common and a little variable in habit on the grassy plains, Berastagi.

Distrib. Malay Peninsula and islands. I suppose this to be the plant Dr. J. J. Smith means by his *Peristylus cadidan* of Java.

SCITAMINEAE.

Globba candida Ridl. n. sp.

About 2 feet tall ; stem not spotted. Leaves thin membranous, thinly hairy beneath, lanceolate cuspidate narrowed to base, 6 to 9 in. long, 2 to 3 in. wide; sheath glabrous, ligule very small. Panicles over 12 in. long, with numerous distant racemes lengthening to 3 in. long of which 2 in. is bare of flowers. Bracts ovate-lanceolate, mucronate .12 in. long, caducous. Flowers white with a yellow spot on the lip ; pedicels .1 in. long, the top dilated into a circular receptacle. Calyx funnel-shaped with three equal acute lobes, .1 in. long. Corolla-tube slender .2 in. long. Upper petal boat-shaped oblong, lower flat oblong. Staminodes linear blunt as long. Lip very short obcuneate with rounded lobes, little longer than the corolla-tube. Stamen long, spurs 2, triangular running the whole length of the anther. Capsule .4 in. long, ellipsoid narrowed at base.

Berastagi woods. Allied to *Globba albiflora* Ridl.

Hedychium cylindricum Ridl. n. sp.

About 4 feet tall. Leaves elliptic-lanceolate acuminate, narrowed to base, sparsely hairy especially on the midrib beneath, 13 in. long, 3 in. wide; petiole .1 in. long; sheath sparsely hairy. Spike cylindric when full grown over 12 in. long, the basal 3 in. covered with ovate brown silky hair, upper floral bracts very numerous, imbricate, hairy especially on the edge, .1 in. long, .5

in. wide. Calyx tubular, hairy all over with oblique mouth, .75 in. long, slender. Corolla-tube slender 1.5 in. long. Petals linear, very narrow 1.25 in. long. Staminodes 1.5 in. long, narrow linear, dilated upwards. Lip with a long narrow claw gradually dilated into an obovate bilobed limb. Stamen nearly 2 in. long. Anther ellipsoid, tip bilobed, base long bifid. Stigma hairy.

Berastagi woods. Also collected at Bandar Bharu near Gunong Sibayak by Mohammed Nur, 7330. Allied to *H. erythrostemon* K. Schum. of Celebes. All the flowers I saw of this were white, Mohamed Nur gives them as yellow.

Hedychium sp. Epiphytic in fruit only.

Berastagi Hill woods.

Zingiber spectabile Griff.

Sibolangit, Bukit Kramat Kudah (Mohamed Nur 7293).

The specimen is poor but it appears to be this plant which is common in the Malay Peninsula and has been found in Sumatra before.

Amomum sumatrense Ridl. n. sp.

A tufted plant with the habit of *Geostachys*. Leaves linear-lanceolate, long cuspidate-acuminate glabrous, base narrowed, 18 in. long, 1.25 in. wide ; petiole 1 in. long ; sheaths narrow over 6 in. long ; ligule oblong truncate .5 in. long. Raceme short, oblong, 3 in. long on a 3 inch peduncle covered with large oblong bracts 1.5 in. long, truncate below, lanceolate acuminate above. Floral bracts enwrapping 2 flowers oblong-lanceolate cuspidate .75 in. long, red. Calyx lanceolate acuminate, red, .75 in. long, longer than the corolla-tube. Corolla 1.5 in. long to end of tip rounded, yellow, spotted red inside the mouth. Anther crest broad, entire, top rounded with a short point in the middle.

Berastagi woods. Allied to *A. spiceum* Ridl. of Bukit Tangga, Negri Sembilan. Both of these have the habit and colouring of *Geostachys* but the anther is crested.

Amomum sp.

Fruiting specimens only, oblong with short spines from a broad base.

Sibolangit, Bukit Kramat Kudah (Mohamed Nur 7255).

Hornstedtia Beccarii Ridl. n. sp.

Rhizome stout, woody .4 in. through ; stems as short ; sheaths striate covered when young with small irregular reddish patches, leaving short transverse bars when gone. Leaves oblong cuspidate, base narrowed blunt, young leaves softly hairy on the back ; adult glabrous except midrib, 18 in. long, 4.5 in. wide or less petiole hardly any ; ligule elliptic-lanceolate, tip round, thickly hairy on edge; sheaths about 9 in. long as described above. Inflorescence obconic, 3 in. long ; peduncle covered with sheaths under .5 in. to 2.5 in. long. Bracts ovate to ovate-lanceolate, finely ribbed. Flowers 2.25 in. long. Calyx tubular with 3 acute points and a rib in the centre, 1.5 in. long. Corolla-lobes lanceolate-oblong, bluntly rounded at tip, 1.75 in. long. Lip fleshly oblong blunt as long as petals, inside densely velvety hairy with 3 hairy points projecting back to mouth tube. Stamen filament very broad at base, narrowed to the anther, densely velvety hairy, crest distinct, rounded with 3 raised veins all hairy; anther-cells hairy narrow ; anther bifid at both ends. Style slender, glabrous : stigma cup-shaped.

Sumatra, Mount Singalan (Beccari 267), Sibolangit, Bukit Semaik (Mohamed Nur 7361). Flowers yellow.

The remarkable hairy lip and stamen with its distinct crest is unlike anything I know in this genus.

Hornstedtia triorgyalis Ridl.

Mohamed Nur collected at Sibolangit, on Bukit Kluang No. 7411, specimens of a *Hornstedtia* which seems to differ from *H. triorgyalis* only in the leaves being glabrous.. The species is a native of Perak.

Phaeomeria caudiculata Ridl. n. sp.

Leafy stem 6 feet or more. Leaves chartaceous, stiff, glabrous oblong, base blunt, 2 feet long, 4.5 in. wide ; midrib prominent; petiole .6 in. long, deeply channelled; ligule stiff, .6 in. long ; sheath strongly ribbed and caudate. Scape 3 feet tall, .25 in. through, pubescent with several lanceolate bracts below the head, the lowest 7 in. long, glabrous except at the tips, white hairy. Head 2 inches long, 2.5 in. wide. Bracteoles linear caudate, white-hairy, 1.75 in. long, cherry red. Inner bracteoles enclosing 2 flowers, lanceolate with 2 tails at the tip, 1.5 in. long, .5 in. wide at base. Calyx hairy tubular at base ending in three points tufted with white hairs and bearing glabrous tails, 1.5 in. long. Corolla-lobes lanceolate, narrow glabrous, thin 1.25 in. long, .1 in. wide. All red. Lip oblong-lanceolate acuminate acute, hairy outside, edges incurved yellow, 1.75 in. long. Anther linear-oblong, no crest, pubescent on back at base. Stigma broad, rounded ovate, hairy, deep red.

Berastagi forests, West hill. A very handsome and curious species, the tailed bracts and sepals being very curious. There are two other species of *Phaeomeria* from Sibolangit in Mohamed Nur's collection but no developed flowers. Both appear to be undescribed.

Phrynium densiflorum Bl.

Sibolangit, Bukit Kluang valley (Mohamed Nur 7220).
Distrib. Java.

Musa sumatrana Becc. Ill. Horticole; xxxvii. 37, t. 375.

In 1877 Beccari sent home from Sumatra live plants of a wild banana of which the leaves had brown spots, it was figured as above in 1880. The plant was never fully described, nor really sufficiently so to be perfectly certain what species he had. In the Berastagi forests was however, a banana of which the young plants bore the brown spotting of *Musa sumatrana* as well as their general habit. Of this plant I was unable to find a single flowering specimen, and only came across a few nearly rotten fruits. *Musa malaccensis* of the Malay Peninsula often in the young state has brown spotted leaves; but this Sumatran plant was a smaller and more slender banana and the fruits seemed to me also to be different.

Mr. Burkill sends a specimen of a banana collected by Mohamed Nur from Sibolangit which, however, appears to me the same plant and of which I give such information as I can derive from the specimen.—Leaf 25 inches wide, glabrous; inflorescence with narrow linear acuminate bracts 5 in. long, .2 in. wide, the terminal ones lanceolate 3 in. long, .8 in. wide; whorls of flowers very close set about 16 in a row ; rachis hairy. Male flowers 1.75 in. long ; pedicel .2 in. long, outer sepal linear, boat-shaped, edge scarious, top 3-lobed, acute, inner .6 in. long. Filaments as long ; anthers linear .5 in. long. Style glabrous as long. Fruits about 6 in. long, curved cylindric about 12 in one series.

Sibolangit, Bukit Kramat Kuda (Mohamed Nur 7259).

The narrow bracts suggest, at least that it belongs to the *Rhoddchlamys* section to which Schumann refers it. I have little doubt that this specimen belongs to *M. sumatrana* Becc., and am sure that the plant I met with at Berastagi was this species.

AMARYLLIDACEAE.

Curculigo recurvata Dry.

Woods, Berastagi. *Distrib.* Malay Peninsula and islands.

Hypoxis aurea Lour.

Berastagi (Mrs. Burkill). *Distrib.* Indo-Malaya.

Crinum moluccanum Roxb.

Sibolangit, Bukit Kluang (Mohamed Nur).
Distrib. Malay islands.

LILIACEAE.

Disporum multiflorum Don.

Berastagi woods.
Distrib. Java, India, Malay Peninsula at Telom.

Rhuacophila javanica Bl.

Sibayak volcano, 7000 feet. Forming large clumps in the scrub on the upper slope. Flowers white.
Distrib. Java, Malay Peninsula.

Smilax javensis DC.

Near the top of the volcano Sibayak at 7000 ft.
Distrib. Java, Philippines.

S. micropoda DC.

Sibayak volcano, upper woods. *Distrib.* Java.

PONTEDERIACEAE.

Monochoria hastaefolia Presl.

Form with ovate blunt leaves, in a stream in a ravine in Beratagi plain. A similar form occurs in the Philippines.

Distrib. Tropical Asia.

COMMELINACEAE.

Pollia sorzogonensis Endl.

Berastagi woods by a stream.

A form with unusually large bracts, oblong blunt .25 in. long, .1 in. wide, occurs in these woods.

Pollia thyrsiflora Endl.

Sibolangit, Bukit Semaik (Mohamed Nur 7366).

Distrib. Malaya.

Commelina clavata C. B. Clarke.

Berastagi woods. Flowers pale blue.

Commelina Hasskarli C. B. Clarke.

Berastagi woods. Flowers pale blue.

Distrib. Malay Peninsula.

Commelina obliqua Ham.

Berastagi woods. Flowers pale blue.

Distrib. Malay Peninsula.

Aneilema protensum Wall.

Berastagi woods. Flowers white.

Distrib. Malay Peninsula, Telom.

Forrestia sumatrensis Ridl. n. sp.

Herb about 3 feet tall, glabrous ; stem slender. Leaves lanceolate cuspidate acuminate, narrowed to the base, 6 in. long, 1.5 in. wide ; sheath tubular, 1 in. long with pale soft bristles at the mouth and on a line down the sheath. Heads 1 in. through, lower bracts ovate hairy .15 in. long. Sepals linear-oblong .4 in. long. Petals narrowed. Stamens apparently quite glabrous. Capsule oblong, round triquetrous, narrowed at base terminated by the style.

Berastagi woods. Flowers white ; fruit pink.

This somewhat resembles *F. gracilis* Ridl., but is smaller and none slender.

Forrestia porrecta Ridl. n. sp.

Stems long, creeping 2 feet or more very slender, glabrous. Leaves lanceolate caudate acuminate with a long point 1 in. long, base narrowed, blunt 4.5 in. long, 1.25 in. wide ; petiole .1 in.

long, sheath .75 in. long or more, cylindric with long slender bristles at the mouth and a line of hair down the centre on one side. Heads small, few-flowered about 5 or 6 flowers. Bracts ovate acute. Sepals linear-oblong, boat-shaped hairy on the keel and tip. Petals slightly longer, thin, white, blunt lanceolate as long as the filaments. Filaments long, white, hairy at tip, glabrous below. Anthers ovate. Style longer.

Berastagi hill woods. This curious plant has long creeping stems lying prostrate on the ground or creeping up the trunk of a tree. It has also remarkably small heads of few flowers.

Forrestia mollis Hassk.

Sibolangit (Mohamed Nur). *Distrib.* Malaya.

JUNCACEAE.

Juncus prismatocarpus Ehrh.

Common in sandy streams both on Berastagi plateau and at the base of the volcano Sibayak in the sulphureous stream. *Distrib.* Europe, India.

PALMAE.

Pinanga canina Becc.

Bandar Bharu, Gunong Sibayak (Mohamed Nur 7394). *Distrib.* Malaya.

Pinanga parvula Ridl. n. sp.

Tree 6 feet tall. Leaves with numerous linear acuminate lobes, 12 in. long, 1 in. wide; usually with 2 to 6 nerves, rachis slender. Spathe oblong bluntly acuminate, 4.5 in. long, 1.1 in. wide. Spadix erect; branches 3. Male flowers ovate triangular acute, point curved up .2 in. long. Stamens 6, very short. Female flowers distichous; sepals broad rounded ovate. Petals hardly as long. Fruit oblong .3 in. long. Seed ellipsoid, not ripe. Berastagi forests. Near *P. stricta* Becc. of Borneo.

Caryota sp.

A large species occurred in and round villages evidently planted, perhaps *C. furfuracea* Bl. Mohamed Nur sends a specimen from Sibolangit No. 7231 which appears to be *C. furfuracea* Bl.

Arenga saccharifera Labill.

Occurred round villages.

Daemonorops propinqua Becc.

Bandar Bharu, Gunong Sibayak (Mohamed Nur 7308). *Distrib.* Malay Peninsula.

Calamus karuensis Ridl. n. sp.

Rather slender and about 22 feet long. Leaf-rachis armed with few, short recurved thorns ; leaflets oblong-lanceolate, long acuminate, shortly narrowed at the base ; nerves about 6, with short transverse nervules undulate numerous 15 in. long 1.5 in. wide. Spadix, male 3 feet long, sheaths flattened, lowest one 9 in. long, .5 in. wide at top with few scattered short thorns on the edge ; limb short .25 in. long, scurfy, triangular acute, upper sheath similar but much smaller and unarmed; secondary spathes tubular 1.5 in. long, mouth oblique, limb short triangular acute ciliate on the edge scurfy. Spadix branches shortly projecting from the sheaths ; peduncle hardly or not projecting ; branches one or two; branchlets 6 to 10 with flowers scattered; flowers about 1 to 1.5 in. long. Spathels .1 in. long, scurfy. Flowers about 20 on a branchlet. Bracts small, ovate mucronate, Spathellules cup-shaped round, striate or with 3 minute points. Calyx tubular striate with 3 short ovate lobes .11 in. long. Corolla little longer. Petals elliptic. Stamens 4, linear with very short filaments.

Berastagi forests. The only rattan I saw there. Allied to *C. aruensis* Becc., but stouter, and also to *C. siphonacanthus* Becc. of the Philippines but much less robust and thorny and with flattened lower spathes.

ARACEAE.

Arisaema filiforme Bl.

Sporadically in the Berastagi woods.
Distrib. Java, Sumatra, Malay Peninsula.

Homalomena Raapii Engl.

Sibolangit, Bukit Kluang (Mohamed Nur 7410).

There was a very big *Homalomena* common in the Berastagi woods which I take to be this plant, but I could find no trace of flowers or fruits. I have seen no type of this species, but from description and figure take these plants to be Engler's species which is a native of Western Sumatra.

Homalomena paludosa var. ?

Bandar Bharu, Gunong Sibayak (Mohamed Nur 7396). Fruit greenish and stalk brown. I have no spathe on the specimen and there is some difference in the foliage, but it may be a form of *H. paludosa.*

Homalomena Burkilliana Ridl. n. sp.

Stem 1 in. or more tall, not stout. Leaves ovate, base broad slightly retuse, tip shortly acuminate mucronulate ; nerves very numerous about 20, more prominent than the others (these consisting of fascicles of smaller nerves which diverge from the central one at different points) 6 in. long, 3.5 in. wide ; petiole slender, ·9 in. long, sheathing for 2 inches. Spadices about 8 to a plant on long slender peduncles 1.5 in. long. Spathes cylindric, mucronate 1 in. long. Spadix nearly as long. Male and female portions equally long. Male portions cylindric acuminate. Female of about 30 pistils ; stigmas round.

Sibolangit, Bukit Kluang (Mohamed Nur 7412). Allied to *H. elliptica.*

Homalomena (Chamaecladon) obovata Ridl. n. sp.

Stem 2 in. long or more creeping with long roots. Leaves obovate to oblanceolate, base long narrowed, tip blunt or shortly acuminate, 2 to 4 in. long, .5 to 1.5 in. wide ; nerves 6 or 7 pairs slightly thicker than the others which are few, very fine and inconspicuous ; petioles 2 to 4 in. long ; sheath .5 to 1.75 in. long, very broad, .3 in. wide in large leaves, dilated to base red. Spathes few, curved cylindric with broad base and mucro at top .5 in. long on a pedicel slender 3 in. long. Spadix .3 in. long cylindric. Female portion of 8 pistils, much shorter than the acuminate males.

Berastagi, common. Somewhat near *H. Griffithii* but much smaller, more creeping and with unusually broad sheaths to the leaves.

Schismatoglottis longipes Miq.

Berastagi (Mohamed Nur).
Distrib. Malay Peninsula and islands.

Schismatoglottis Wallichii Hook. fil.

Sibolangit (Mohamed Nur).
Distrib. Malay Peninsula and islands.

Colocasia antiquorum Linn.

Sibolangit, Bukit Semaik (Mohamed Nur 7357).

Amydrium humile Engl.

Creeping on the ground in the woods. Berastagi not rare.
Distrib. Penang.

Anadendrum montanum Schott.

Berastagi (Mrs. Burkill).
Distrib. Malay Peninsula and islands.

Anadendrum affine Schott.

Bandar Bharu, Gunong Sibayak (Mohamed Nur 7394).
Distrib. Borneo.

Raphidophora crassifolia Hook. fil.

Sibolangit, Bukit Semaik (Mohamed Nur).
Distrib. Malay Peninsula.

Pothos paucinervius Ridl. n. sp.

Slender climber. Leaves lanceolate oblong acuminate, acute, base hardly narrowed ; nerves about 15 pairs with shorter ones loosely reticulated, 6 in. long, 1.5 in. wide ; petiole 3.5 to 4 in. long, slender, sheath very narrow up to the knee which is .5 in. long. Peduncle slender 3.5 in. long. Spathe not seen. Spadix stipitate (stipes .2 in. long) short and thick .5 in. long. Perianth longer than the ovary of 6 oblong lobes free to the base and rounded at the top. Ovary top ellipsoid with a short linear stigma.

Berastagi hill woods, climbing on trees.

This species of which I only obtained one spadix and that somewhat advanced resembles *P. Wallichii* Engl., but the venation of the leaves is utterly unlike that of any other *Pothos* known to me, for they almost all have numerous parallel nerves whereas this has but few prominent nerves and wide distinct reticulations.

LEMNACEAE.

Lemna polyrhiza Linn.
Rice fields at the base of the Sibayak volcano.
Distrib. Whole world.

Lemna paucicostata Hegelm.
With the last. *Distrib.* Tropical Asia.

NAIADACEAE.

Potamogeton oxyphyllus Miq.
Gunong Sibayak. Petain valley from a solfatara in warm water. Also collected by Mr. H. C. Robinson on Korinchi.
Distrib. Japan.

PANDANACEAE.

Pandanus Burkillianus Ridl. n. sp.

Leaves probably long, 2.5 in. wide, thorns on edge, minute black. Peduncle of female inflorescence thick, 2 in. or more long. Bracts lanceolate acuminate 6 in. long, 1 in. wide with minute close set spines on edges and keel. Female spikes in flower cylindric, 1.5 in. long; stigmas acute curved. Syncarp 4 in. long, 2.25 in. wide cylindric blunt; fruits .75 in. long, angled cylindric, tops conic blunt, free .15 in. long; stigma ovate acuminate acute, horizontal on a short, thick style.

Gunong Sibayak (Mohamed Nur 7341).

This belongs to the section *Lophostigma* of which all the other recorded species seem to belong to the Papuan and Polynesian region. It is nearly allied to *P. Beccarii* Solms-Laubach, of the Aru islands on its free tips to the fruits, but the stigma is on a distinct stalk while as far as I understand the description and figure in *Pflanzenreich* the stigma in *P. Beccarii* is sessile.

There was a very large branching long-leaved *Pandanus* on the way up to Gunong Sibayak forming a thicket and about 20 feet tall. I saw no fruit on it; this may have been this species.

ERIOCAULACEAE.

Eriocaulon heterolepis Steud.

In a small marsh, Berastagi plains.

Distrib. Bombay and Java. Our form is the variety *nigricans* of Java.

CYPERACEAE.

Kyllinga brevifolia Rottb.

Berastagi, open country. *Distrib.* Tropics.

Kyllinga cylindrica Nees.

Berastagi open country. *Distrib.* Tropical Asia.

Kyllinga melanosperma Nees.

Marshy ground, Berastagi plains.

Pycreus globosus Reich. var. **nilagiricus.**

Edges of streams and marshy ground. Berastagi plains.
Distrib. Tropical Asia.

Pycreus polystachyus Beauv.

Hot sulphur spring at the foot of Sibayak volcano.
Distrib. Tropics generally.

Cyperus pilosus Vahl.

Swampy ground, Berastagi. *Distrib.* Tropical Asia.

Cyperus difformis Linn.

Rice fields at the base of Sibayak volcano. Marshy ground Berastagi plateau.

Distrib. Europe, Asia, Australia; absent from Malay Peninsula.

Cyperus haspan Linn.

Berastagi. Open country. *Distrib.* Tropics.

Cyperus distans Linn.

Road to Berastagi from Medan. *Distrib.* Tropics.

Mariscus Sieberianus Nees.

Berastagi road sides and open country. *Distrib.* Tropics.

Fimbristylis podocarpa Nees.

Among lalang, Berastagi. *Distrib.* Asia.

Fimbristylis diphylla Vahl.

Berastagi roadsides. *Distrib.* Whole World.

Fimbristylis miliacea Vahl.

Swampy ground, Berastagi. *Distrib.* Tropics.

Bulbostylis capillacea Kunth.

Dry hills, Berastagi. *Distrib.* Indo-Malaya.

Scirpus macronatus Vahl.
Swampy marsh, Berastagi. *Distrib.* Tropics.

Rhynchospora glauca Vahl.
In lalang, Berastagi plains. Common.
Distrib. Tropical Asia.

Gahnia javanica Moritz.
Sibayak volcano. *Distrib.* Malay Peninsula and islands.

Scleria Radula Hance.
Lower woods of the volcano Sibayak and hill forests nearer Berastagi.

Scleria chinensis Kunth.
A rather fine and dark form among lalang, Berastagi plains.
Distrib. Malay Peninsula, China.

Carex indica Linn.
Berastagi forests. *Distrib.* Tropical Asia.

Carex baccans Nees.
Berastagi woods. A very handsome species.
Distrib. India, Java, Malay Peninsula (Telom).

GRAMINEAE.

Paspalum orbiculare Forst.
Berastagi, open spots.

Digitaria chinensis Hornem.
Berastagi. Waste open ground. *Distrib.* Tropical Asia.

Urochloa javanica Stapf.
Road from Medan to Berastagi. *Distrib.* Malaya.

Sacciolepis indica Stapf.
Berastagi, open plains. *Distrib.* Tropical Asia.

Pseudechinolaena polystachya Stapf.
In the hill woods, Berastagi. The typical form of Java with small unarmed spikelets. *Distrib.* Tropical Asia.

Panicum paludosum Roxb.
Swampy ground, plains, Berastagi. *Distrib.* Tropical Asia.

Echinochloa Crus-Galli, Beauv.
The awned form. In cultivated ground, Berastagi.
Distrib. Whole world.

Isachne albens Trin.
Mountain forests, Berastagi.
Distrib. Malay Peninsula and islands.

Oplismenus compositus Beauv.

Berastagi forests and road from Medan. *Distrib.* Tropics.

Setaria glauca Beauv.

Berastagi plains. *Distrib.* Whole World.

Ichnanthus pallens Munro.

Berastagi forests. *Distrib.* Tropical Asia.

Leersia hexandra Sw.

Marsh, Berastagi plains. *Distrib.* Tropics.

Arthraxon nudus Hochst.

Berastagi woods. *Distrib.* India.

Pogonatherum polystachyum R. and S.

On the road between Medan and Berastagi. On rocks. A dwarf form tufted and an elongate one over a foot tall. *Distrib.* Tropical Asia.

Coelorhachis glandulosa (Trin.)

Sibolangit, Bukit Semaik (Mohamed Nur). *Distrib.* Malay Peninsula and islands.

Themeda gigantea Hack

Common all over the plains at Berastagi. *Distrib.* Tropical Asia.

Ischoemum aristatum Linn.

In the garden at the bungalow, Berastagi. Apparently introduced.

Capillipedium parviflorum Stapf.

Berastagi plains.

Capillipedium scabridum Ridl. n. sp.

Slender branched wiry grass over 12 in. tall. Leaves narrow-linear acuminate, caudate scabrid 3 in. long, .06 in. to .2 in. wide; young leaves hairy, ligule and base of leaf with long white hairs, sheaths slender finely ribbed. Peduncle covered by a sheath to the panicle, blade of sheath usually small, but often developed into a lanceolate leaf. Panicle lax 2.5 in. long and about 1.25 in. wide ; branches capillary, rather close set, with a tuft of long white hairs at the base of each. Spikelets 2, one sessile, one pedicelled about .1 in. long, callus bearded with white hairs. Sessile spikelet; glume i. lanceolate purple. hairy; gl. ii. pale narrow-lanceolate with a long slender awn .15 in. long; gl. iii. very short oblong-lanceolate hyaline; style short with a longer broad purple plumed stigma. Pedicellel spikelet glume i. purplish lanceolate, boat-shaped, hairy; gl. ii. larger pale, not awned; gl. iii larger than in the sessile spikelet. Stamens 3, purple.

Berastagi roadside towards the Battak village.

Imperata cylindrica Beauv.

Very abundant covering the whole plain for many miles.

Erianthus decus-sylvae Ridl. n. sp.

Tufted grass forming a bush about 3 feet tall. Leaves broad lanceolate acuminate to a long point, base broad, glabrous above; midrib hairy beneath 7 in. long, 1.1 in. wide; ligule of a few white bristles. sheaths striate, 3 in. long. Panicle lax, 5 or 6 in. long with numerous capillary branches bearing branchlets with racemes of spikelets .5 in. long. Calli with spreading whorls of pink hairs .1 in. long, making the whole panicle look coppery when alive and purple pink when dry. Spikelets sessile and peduncle similar. Glume i lanceolate acute, pale greenish hairy, ii similar but more acute, iii short oblong-lanceolate hyaline; awn slightly twisted, slender coppery .1 in. long. Stamens 3, black. Stigmas conspicuous, rather thick, black.

In dense thickets, forests of West Hill, Berastagi. A most beautiful and attractive grass with its coppery purple panicles.

Coelachne infirma Buse.

Banks in the plain, Berastagi. *Distrib.* Java.

Poa annua Linn.

On banks by the roadside near the village, Berastagi, no doubt introduced.

Sporobolus diander Beauv.

Plains, Berastagi. *Distrib.* Tropical Asia.,

Eleusine indica Linn.

Common on the plain, on paths and waste ground.
Distrib. Whole world.

Eragrostis amabilis W. and A.

Plains, Berastagi. *Distrib.* Tropical Asia.

Eragrostis elongata Jacq.

Berastagi plains in open country.

GNETACEAE.

Gnetum microcarpum Miq.

Sibolangit, Dato Puloh Siam (Mohamed Nur 7383).
Distrib. Malay Peninsula and islands.

FILICES.

Gleichenia linearis Burn.

A dwarf form on Sibayak volcano.

Alsophila squamulata Mett.

Tree fern; stem 3 feet tall. Berastagi woods. *Distrib.* Java.

Humata parallela Wall.
Berastagi woods. *Distrib.* Malaya.

Prosaptea contigua Sw.
Berastagi woods. *Distrib.* Malaya.

Davallia bullata Wall.
Berastagi woods. *Distrib.* Malaya.

Stenoloma chinensis Sw.
Berastagi. *Distrib.* Tropical Asia.

Hymenophyllum javanicum Spreng.
Berastagi woods. *Distrib.* Malaya.

Hymenophyllum salakanse Racib.
Berastagi forests. *Distrib.* Java.

Lindsaya repens Thw.
Berastagi woods. *Distrib.* Tropical Asia.

Pteris aquilina Linn.
Abundant all over the plateau, Berastagi.
Distrib. Whole world.

Litobrochia incisa Thunb.
Sibayak volcano. This plant grows at the highest altitude on the rocks of the volcano of any plant forming dense masses of stunted plants.

Lomaria procera Spr. var. **vestita.**
Sibayak volcano. *Distrib.* Malaya.

Lomaria elongata Bl.
On a rock, Berastagi. *Distrib.* Java.

Thamnopteris nidus-avis Linn.
Woods at Berastagi. Common. *Distrib.* Tropical Asia.

Asplenium normale Don.
Berastagi woods. *Distrib.* Tropical Asia.

Asplenium caudatum Forst.
Berastagi woods. *Distrib.* Tropical Asia.

Asplenium nitidum Sw.
Berastagi woods. *Distrib.*

Diplazium sorzogonense Presl.
Woods on slope, Sibayak volcano. *Distrib.* Tropical Asia.

Diplazium polypodioides Mett.
Sometimes with a short stem like a tree fern. Berastagi woods.
Distrib. India, Malaya, Australia.

Anisogonium cordifolium Mett.
Berastagi woods. *Distrib.* Malaya.

Nephrodium aridum Don.
Road between Medan and Berastagi, and on stream banks, Berastagi. *Distrib.* Tropical Asia.

Nephrodium molle Desv.
Berastagi woods by streams. *Distrib.* Tropics.

Nephrodium erythrosorum Hook.
Sibayak volcano, lower woods.
Distrib. Philippines, Japan, China.

Polystichum aristatum Presl. var. **coniifolium.**
Lane by the Battak village, Berastagi.
Distrib. Tropical Asia.

Nephrolepis exaltata Linn.
Road from Medan to Berastagi. *Distrib.* Tropical Asia.

Pleopeltis membranacea Don.
Berastagi woods. *Distrib.* Indo-Malaya.

Pleopeltis phymatodes Linn.
Banks in open places and on old trees, Berastagi.
Distrib. Tropics.

Pleopeltis albidosquamata Bl.
Distrib. Malaya.

Pleopeltis linearis Thunb.
Berastagi. *Distrib.* Tropical Africa and Asia.

Polypodium incurvatum Bl.
Bandar Bharu, Gunong Sibayak (Mohamed Nur 7346).
Distrib. Malaya.

Cyclophorus grandis Ridl. n. sp.

Rhizome stout, .3 in. through, densely covered with lanceolate acuminate red scales .2 in. long. Sterile fronds, sessile ovate blunt tomentose all over, 1.5 in. long, 1 in. wide. Fertile fronds stiffly coriaceous linear with a lanceolate broadly rounded base, stipes thick, .3 in. long ; lamina 18 in. long, 1.25 in. wide at base, narrowing to .75 in. wide above ; midrib prominent and broad on both sides, above glabrous with conspicuous ascending parallel veins at the base, beneath densely felted with grey stellate hairs, except the midrib. Sori orbicular, large, in rows of 5 closely set at an angle with the midrib ; veins simple or forked near the tip, with faint forked veinlets.

On trees at Berastagi in open places, common. I have failed to find anything resembling this remarkable fern described anywhere. It has some affinities with some South American species.

Hymenolepis spicata Kaulf.
On trees, Berastagi. *Distrib.* Tropical Asia.

Stenochlaena sorbifolia Linn.
Berastagi woods. *Distrib.* Tropical Asia.

Antrophyum plantagineum Kaulf.
Epiphyte. Berastagi woods. *Distrib.* Tropical Asia.

Vittaria elongata Sw.
Berastagi on trees. *Distrib.* Tropics.

SELAGINELLACEAE.

Selaginella atro-viridis Spring.
Berastagi woods. *Distrib.* Malaya.

Selaginella illustris Ridl.
Berastagi woods. *Distrib.* Malay Peninsula.

Selaginella oligostachya Bak. vel aff.
Berastagi woods.

EQUISETACEAE.

Equisetum debile, Roxb.
Sandy marsh ground by a stream, Berastagi plateau. *Distrib.* Tropical Asia.

MARSILEACEAE.

Azolla pinnata Br.
Rice fields and watery spots, Berastagi. *Distrib.* Asia, Australia, Africa.

A Record of the Occurrence of Some Ferns in Northern Sumatra, being Additions to Mr. Ridley's List.

ADDED BY I. H. BURKILL.

When I understood that Mr. H. N. Ridley had in preparation a paper upon his collections from Berastagi in Sumatra, I hastily sent to him the material which I had accumulated from the same region, with the exception of the ferns collected for me by my collector Mohamed Nur in the neighbourhood of Sibolangit which had already been submitted to Prince Roland Bonaparte in Paris. The determinations which His Highness the Prince has sent to me add the following to what Mr. Ridley has recorded.

Alsophila glauca, J. Sm., var. **setulosa,** Hassk. Sibolangit on Bukit Kluang, No. 7439.

Hymenophyllum blandum, Rac. Bandar Bharu on Gunong Sibayak, No. 7325.

Trichomanes pallidum, Bl. Bandar Bharu on Gunong Sibayak, No. 7320.

Trichomanes humile, Forst. Sibolangit, on Bukit Kluang, No. 7429.

Trichomanes cupressoides, Desv. (*T. rigidum* Sw.) Bandar Bharu on Gunong Sibayak, No. 7348.

Trichomanes bauerianum, Endl. Bandar Bharu on Gunong Sibayak, No. 7306.

Dryopteris megaphylla, C. Christ. Sibolangit, on Bukit Kluang, No. 7440.

Dryopteris truncata, O. Ktze. Sibolangit, on Bukit Semaik, No. 7370.

Lindsaya gracilis, Bl. Sibolangit, in Dato Pulo Siam Valley, No. 7297.

Odontosoria retusa, J. Sm. Sibolangit, on Bukit Pasang, No. 7226, and on Bukit Semaik, No. 7359.

Diplazium larutense, Bedd. (ex descript.) Bandar Bharu on Gunong Sibayak, No. 7334.

Diplazium cordifolium, Bl. Bandar Bharu on Gunong Sibayak, No. 7397.

Asplenium unilaterale Lam. var. **delicatulum** Bedd. Sibolangit, on Bukit Semaik, No. 7351.

Coniogramme macrophyllum, Hieron. Sibolangit, in Dato Pulo Siam Valley, No. 7202.

Antrophyum semicostatum, Bl. Sibolangit, on Bukit Pasang, No. 7224.

Vittaria angustifolia, Bl. Bandar Bharu on Gunong Sibayak, No. 7319.

No one of these ferns is represented in Mr. Ridley's Berastagi collection, and no one of the 33 which Mr. Ridley collected at or near Berastagi appeared in the Sibolangit collection.

On Malaysian Katydids

(Gryllacridae and Tettigoniidae),

from the Raffles Museum, Singapore.

By H. H. Karny, ph.d., m.u.d.

Buitenzorg (Zoological Museum), Dutch East Indies.

While studying the long-horned grasshoppers or katydids from the Malayan and Austro-Malayan region, as represented in the Buitenzorg Zoological Museum (which will be published in the Zoological Journal "Treubia" at Buitenzorg), I also received the material of these groups from the Raffles Museum, Singapore, by the kindness of the Director of that museum. This material has proved of considerable interest and it gives me great pleasure to acknowledge my indebtedness to the Raffles Museum for the opportunity of studying these insects.

The Malayan katydids were hitherto comparatively well known. Especially is this the case in those from Java and to some extent from Sumatra; but less so in those from the Malay Peninsula and Borneo, whence most of the specimens in the Raffles Museum originated. The distribution of the majority of katydid species is usually rather limited, so it is no wonder that there are many new species amongst this material, and, on the other hand, that many species—especially those known from Java or Sumatra only—are not represented in this collection. Connected with this restricted distribution is also the fact that of all the species not yet known from this region two only are already known from other countries : all the others are entirely new to science.

25 species already known from the Malaysian sub-region are here represented from new localities : 4 being new for Borneo, 21 for the Malay Peninsula (which includes the island of Singapore). But there are also some endemic species from these two countries already known from the same localities, but hitherto represented by one or only a few specimens in European collections, whose rediscovery is very interesting. From other species, one sex only was hitherto known, and from the material before me I have now been able to describe the other sex.

LIST OF THE MALAYSIAN GRYLLACRIDAE AND TETTIGONIIDAE.

Subfamilies:	Number of species hitherto known	Represented in the collection of Raffles Museum						Grand Total
		Species hitherto known	New species	New for Malaysia[1]	New for the Malay Peninsula[2]	New for Borneo[2]	Total	
Gryllacrinae ..	79[3]	9	4	...	4	...	13	83
Phaneropterinae ..	83	21	19	...	10	1	40	102
Mecopodinae ..	7	1	...	...	...	...	1	7
Phyllophorinae ..	1		...	1	...	...	1	2
Pseudophyllinae ..	67	12	6	1	5	1	19	74
Listroscelinae .. (*Incl.* **Xiphidiopis**)	14	1	2	..	...	...	3	16
Conocephalinae ..	10	3	...	...	...	...	3	10
Agraeciinae ..	26	3	2	...	1	...	5	28
Copiphorinae ..	33	5	2	...	1	2	7	35
Total ..	320	55	35	2	21	4	92	357

(1) but already known from other countries.

(2) but already known from the Malaysian sub-region.

(3) incl. *Gryllacris dehaani* a new name for *signatifrons* DE HAAN *nec* SERVILLE, proposed in the following paper (not represented in the Raffles collection.)

The foregoing summary gives the numbers for the different subfamilies, as known at present from the Malaysian sub-region. The few subspecies and varieties hitherto described and named are included as species. My remarks on the more interesting species are given in the detailed list of species in the succeeding pages.

From this table it will be seen that, of the species represented in the Raffles Museum, 38% are new while the number of all those hitherto known from Malaysia is now increased by 11½%.!

FAM. GRYLLACRIDAE.

Subfam. ***Rhaphidophorinae.***

Not represented in the material before me.

Subfam. ***Gryllacrinae.***

Genus **Gryllacris** Serville.

1831. SERVILLE, Ann. Sci. Nat., XXII, p. 128.
1838. BURMEISTER, Handb. Ent., II, p. 717.
1839. SERVILLE, Hist. Nat. Ins. Orth., p. 392.
1860. GERSTÄCKER, Arch. f. Nat., XXVI, p. 245.
1869. *Larnaca* WALKER, Cat. Derm. Salt. Brit. Mus., I, p. 190.
1888. BRUNNER v. W., Verh. zool.-bot. Ges. Wien, XXXVIII, p. 316, 317.
1892. TEPPER, Trans. R. Soc. S. Australia, XV, p. 142.
1897. SAUSSURE & PICTET, Biol. Centr.-Amer., Orth., I, p. 285.
1906. KIRBY, Syn. Cat. Orth., II, p. 139.
1908. MATSUMURA & SHIRAKI, Journ. Coll. Agric., Sapporo, III, 1, p. 69.
1909. *Scandalon* ZACHER, Zool. Anz., XXXIV, 11, 12, p. 272.
1910. KARNY, SCHULTZE, Zool. anthrop. Ergebn. Forsch. Südafr., IV, p. 37, 38.
1921. KARNY, Treubia, I, 4, p 174-178.

Gryllacris signatifrons Serville.

1839. SERVILLE, Hist. Nat. Ins. Orth., p. 393.
1860. GERSTÄCKER, Arch. f. Nat., XXVI, p. 273.
1869. WALKER, Cat. Derm. Salt. Brit. Mus., I, p. 179.
1888. BRUNNER v. W., Verh. zool.-bot. Ges. Wien, XXXVIII, p. 340 (*facifer*).
1891. PICTET & SAUSSURE, Mitt. Schweiz. Ent. Ges., VIII, p. 311 (*latipennis*).
1906. KIRBY, Syn. Cat. Orth., II, p. 141 (*latipennis*), 142.
1908. GRIFFINI, Boll. Mus. Zool. Anat. Torino, XXIII, 581, p. 4.
1909. GRIFFINI, Mon. Zool It., XX, 4, p. 111.
1911. GRIFFINI, Boll. Mus. Zool. Anat. Torino. XXVI, 636, p. 5.

1911. GRIFFINI, Atti Soc. It. Sci. Nat., L. p. 208.
1912. GRIFFINI, Sarawak Mus. Journ., I, 2, p. 3.
1913. GRIFFINI, Tijdschr. Ent., LVI, p. 188.

Delendae:

1842. DE HAAN, Temminck, Verh., Orth., p. 219.
1920. KARNY, Zool. Mededeel., V, 4, p. 154, 203.

1 ♀ of the typical form from Penang (1500′-2428′ ; May 1917). Venation of tegmina according to my type I (*Treubia* l.c., fig. 4).

Hitherto known from Java, Sarawak and Siam.

When I redescribed *Gr. signatifrons* De Haan, I had not material for comparison of the true *signatifrons* Serville. Now I see these two species are not identical; *signatifrons* Serville has an ocelliform yellow spot on forehead, whilst in *signatifrons* De Haan the whole forehead is yellowish, in the shape of a large cross bordered with black. The latter species therefore requires a new name, and I propose *Gryllacris dehaani m.n.n.* for *Gr. signatifrons* De Haan (and Karny), *nec* Serville.

Gryllacris translucens Serville.

1839. SERVILLE, Hist. Nat. Ins. Orth., p. 394.
1860. GERSTÄCKER, Arch. f. Nat., XXVI, 1, p. 271 (*amplipennis*), 273.
1869. WALKER, Cat. Derm. Salt. Brit. Mus., I, p. 179 (*amplipennis*), 180.
1888. BRUNNER v. W., Verh. zool.-bot. Ges. Wien, XXXVIII, p. 336 (*amplipennis*).
1898. BRUNNER v. W., Abh. Senckenb. Ges., XXIV, p. 199 (*amplipennis*).
1906. KIRBY, Syn. Cat. Orth., II, p. 141 (*amplipennis*), 142.
1908. GRIFFINI, Boll. Mus. Zool. Anat. Torino, XXIII, 587, p. 4.
1909. GRIFFINI, Atti Soc. It. Sci. Nat., XLVII, p. 178.
1909. GRIFFINI, Boll. Mus. Zool. Anat. Torino, XXIV, 610, p. 15.
1909. GRIFFINI, Rev. Suisse Zool., XVII, 2, p. 386.
1911. GRIFFINI, Ann. Mus. Zool. Petersb., XVI, p. 68.
1911. GRIFFINI, Atti Soc. It. Sci. Nat., L, p. 208.
1911. GRIFFINI, Ann. Mus. Genova, (3), V, p. 88, 126.
1912. GRIFFINI, Atti Soc. It. Sci. Nat., LI, p. 225.
1920. KARNY, Zool. Mededeel., V, 4, p. 148, 203.

3 ♂♂ from Pulo Pisang (1.-3. Apr. 1921).

Length of tegmina 31-37 mm. Their venation always according to type I, but somewhat variable. Median vein usually simple, sometimes bifurcate and in this case their posterior branch often united with the first cubital branch.

Distribution : "India," Java, Halmahera.

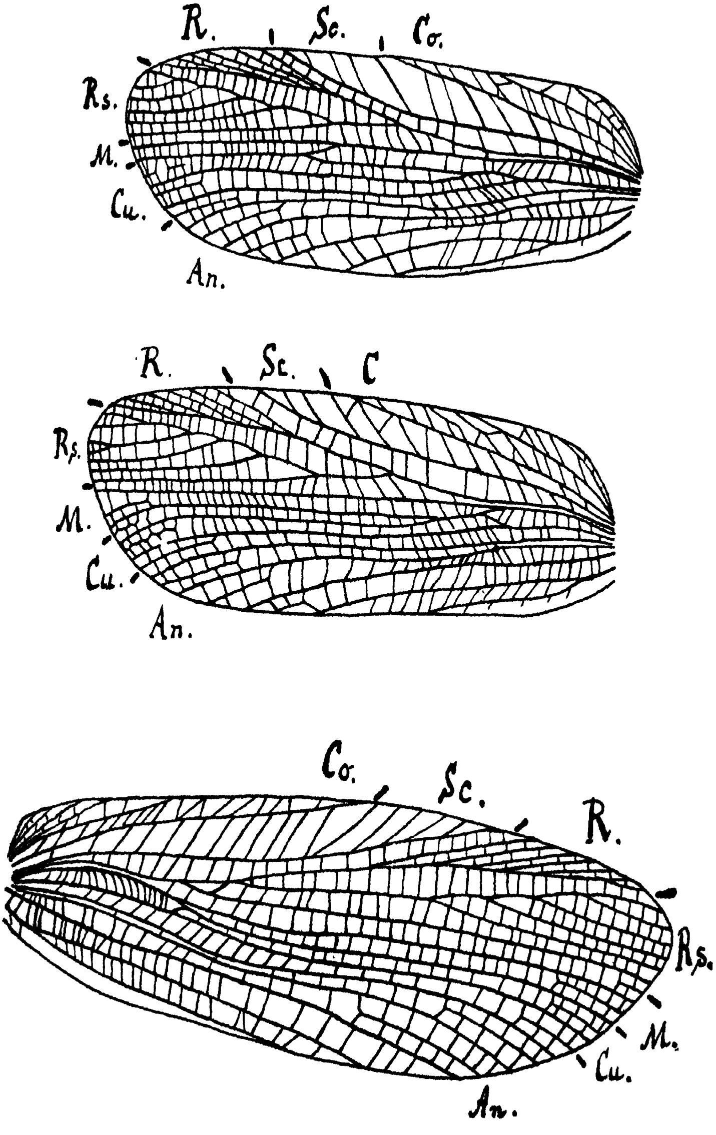


Fig. 1. Fore wings of *Gryllacris translucens* (above and middle) and its *var. secunda* (beneath). All 2½ times enlarged.

Gryllacis translucens var. **secunda** Brunner v. W.

1888. BRUNNER v. W., Verh. zool.-bot. Ges. Wien, XXXVIII, p. 337 (*amplipennis var. secunda*).
1893. BRUNNER v. W., Ann. Mus. Genova, (2), XIII, p. 189 (*amplipennis*).
1908. GRIFFINI, Boll. Mus. Zool. Anat. Torino, XXIII, 587, p. 4 (*amplipennis*).
1909. GRIFFINI, Atti Soc. It. Sci. Nat. XLVII, p. 178 (*translucens var. weyersi*).
1909. GRIFFINI, Boll. Mus. Zool. Anat. Torino, XXIV, 610, p. 14 (*amplipennis*).
1909. REHN, Bull. Amer. Mus. Nat. Hist., N. Y., XXVI, p. 206 (*amplipennis*).
1911. GRIFFINI, Ann. Mus. Zool. Petersb., XVI, p. 69 (*amplipennis*).
1911. GRIFFINI, Ann. Mus. Genova, (3), V, p. 89, 126.

Diverging from the typical form by larger size : length of tegmina 41-47 mm. Venation always according to type I, somewhat variable : median vein as in the typical form.

In one of the specimens before me, the radial vein on the right tegmen has its sector very well developed, but once more united for a very short distance with the radius, after emission of the first branch of radial sector. This first branch therefore, could be mistaken for a medial vein arranged according to type IV, if there were not present a free medial vein behind it, arising from the base of tegmen. Posterior medial and anterior cubital branch united with each other.

Var. *secunda* is represented in the material before me from the following localities : Gunong Angsi, Negri Sembilan (2000-2790'; April 1918). Gilstead Road, Singapore (July 1917 ; coll. V. Knight). Museum Grounds, Singapore (12 Oct. 1911).

Hitherto recorded from Sumatra, Malacca and Tenasserim.

Gryllacris singaporae n. sp.

♀. Moderately large, stout ; yellowish brown, nearly unicolorous, but the vertex somewhat darker brown.

Head broadly ovate, as seen in front, distinctly wider than pronotum. Occiput and vertex convex ; the latter not quite twice as wide as the first antennal joint, with blunt lateral margins, yellowish bordered on both sides and beneath, but with no distinct ocelliform spots. Forehead depressed, nearly concave beneath, smooth, with a few indistinct dots. Mouth parts as coloured as the body, except the end of mandibles, which is black. Antennae unicolorous.

Pronotum small, subquadrate as seen from above. Fore margin rounded, but hardly produced ; fore furrow very well impressed ; longitudinal sulcus finely marked nearly throughout the whole length of pronotum. The two posterior transverse furrows close to each other, the hindermost at the hind margin; metazona between them nearly plain. Disc behind the anterior furrow slightly convex on each side. Hind margin prominent, truncate. Lateral lobes nearly twice as long as high, roundly inserted, with rounded fore and hind angle ; lower margin straight, nearly horizontal ; humeral sinus indistinct. The U-shaped furrow and the posterior one deeply impressed ; the space between them arched in the shape of a hump.

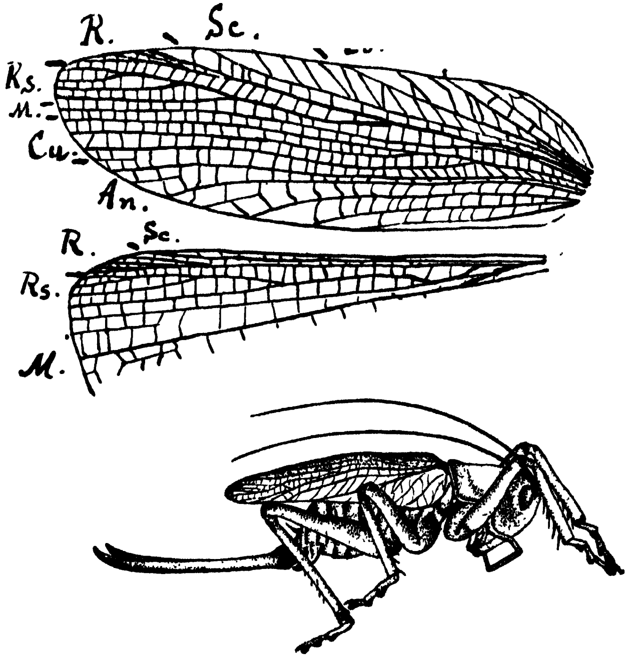


Fig. 2. *Gryllacris singaporae.* Above: fore wing and fore part of hind wing, 2½ times enlarged.—Beneath: total, lateral view, natural size.

Tegmina a little over-reaching the hind knees and end of abdomen, rounded at apex, very pale whitish-grey, with yellowish brown veins. Venation according to type I. Radial vein with 3 (except the end of vein itself) very oblique, nearly longitudinal branches against the fore margin. Radial sector arising somewhat before the middle, with 3 (except the end of sector itself) hind branches against the apex of tegmen. Medial vein free, arising from base of tegmina, at base closer to radial than to cubital vein, simple throughout its whole length (on both tegmina). Cubital vein divided into 3 branches: bifurcate in the first fourth of tegmen, the fore branch once more bifurcate just before the radial sector arises from radius. Venation quite uniform on both sides.

Wings uniformly pale greyish, with pale brown veins. intermediate in shape between the tringular and the cycloid type. Radial vein and sector branched as in tegmina; but the sector arising close to base, and communicating with the medial vein by an oblique branch.

Legs moderately long, stout, set with long piles, of the same colour as body ; tarsi a little darker, especially beneath. Hind femora beneath on each side just before apex with one spine only, which is dark at apex. Fore and middle tibiae with 4 pairs of long, movable spines beneath, which are somewhat darker at extreme apex. Hind tibiae cylindrical in basal half, plain above in distal part, and there with about six short spines, black at apex, on each side.

Ovipositor very long, nearly straight, sharply pointed at apex, of the same colour as body, but somewhat darker at apex. Subgenital plate (♀) rounded, about as long as wide at base, longitudinally excavate in middle; on each side of this excavation with a prominent keel at base, and laterally from this with a short longitudinal furrow; margins somewhat swollen, prominent, parallel in basal part, then gradually rounded.

Length of body 29 mm., of pronotum 5.2 mm., of tegmina 30.5 mm., width of tegmina 9.7 mm., length of hind femora 17 mm., of ovipositor 26.5 mm.

1 ♀ from Singapore.

Seems to come nearest amongst the hitherto known species to the Bornean *venosa* and *xanthusi*, but differing from both by the characters described above. The type of venation in the two Bornean species has not yet been recorded. *Gr. singaporae* belongs to type I, but has the transverse veins of tegmina not blackish, as is usual in this type, and the shape both of tegmina and wings is somewhat intermediate between the usual form of types I and IV, agreeing rather better with the latter. But the relations of radial sector and medial vein are quite as in type I, altogether very different from type IV.

Gryllacris ruficeps Serville.

1831. SERVILLE, Ann. Sci. Nat., XXII, p. 139.
1833. BELANGER, Voy. Ind. Orient., p. 495.
1838. BURMEISTER, Handb. Ent., II, p. 718.
1839. SERVILLE, Hist. Nat. Ins. Orth., p. 294.
1840. BLANCHARD, Hist. Nat. Ins., III, p. 30.
1842. DE HAAN, Temminck, Verh., Orth., p. 220.
1860. GERSTÄCKER, Arch. f. Nat., XXVI, p. 259.
1888. BRUNNER v. W., Verh. zool.-bot. Ges. Wien, XXXVIII, p. 345.
1906. KIRBY, Syn. Cat. Orth., II, p. 143.
1908. GRIFFINI, Boll. Mus. Zool. Anat. Torino, XXIII, 587, p. 7.
1909. GRIFFINI, Atti Soc. It. Sci. Nat., XLVII, p. 178.

1909. GRIFFINI, Atti Soc. It. Sci. Nat., XLVII, p. 310.
1910. GRIFFINI, Atti Soc. It. Sci. Nat., XLIX, p. 12.
1911. GRIFFINI, Ann. Mus. Zool. Petersb., XVI, p. 70.
1913. GRIFFINI, Tijdschr. Ent., LVI, p. 183.
1920. KARNY, Zool. Mededeel., V, 4, p. 152, 203.

Gryllacris ruficeps subsp. **malaccensis** Griffini.

1897. GRIFFINI, Misc. Ent. Narbonne, V, p. 142 (*ruficeps*).
1908. GRIFFINI, Boll. Mus. Zool. Anat. Torino, XXIII, 587, p. 7.
1910. GRIFFINI, Atti Soc. It. Sci. Nat., XLIX, p. 12.
1911. GRIFFINI, Boll. Mus. Zool. Anat. Torino, XXVI, 636, p. 10.
1911. GRIFFINI, Ann. Mus. Genova, (3) V, p. 110.
1912. GRIFFINI, Sarawak Mus. Journ., I, 2, p. 5.

1 ♀ from Gunong Angsi, Negri Sembilan (2,000'-2,790'; April 1913). Venation of tegmina according to my type IV (Treubia l.c., fig. 7).

This subspecies was hitherto known from Malacca, Pulo Penang, Perak, and from Sarawak.

Gryllacris discoidalis Walker.

1869. WALKER, Cat. Derm. Salt. Brit. Mus., I, p. 174.
1906. KIRBY, Syn. Cat. Orth., II, p. 144.

Gryllacris discoidalis subspec. **atropicta** Griffini.

1911. GRIFFINI, Boll. Mus. Zool. Anat. Torino, XXVI, 636, p. 16.
1912. GRIFFINI, Sarawak Mus. Journ., I, 2, p. 9.
1913. GRIFFINI, Atti Soc. It. Sci. Nat., LII, p. 222.
1914. GRIFFINI, Atti Soc. It. Sci. Nat., LIII, p. 342.

Three ♂ specimens from Penang (1,500'-2,428', May 1917) and Singapore (Changi, Aug. 1911.—7th Mile Stone, Bukit Timah; presented by H. Overbeck; 27 Sept. 1913).

Venation of tegmina in all specimens (on both sides) according to type IV. All tibiae verdigris-green in basal half. The coloration of pronotum is somewhat variable; in the specimen from Penang very dark and well defined; the knees distinctly black, the green colour of tibiae hardly distinguishable.

The specimen from Singapore, 1913, has the coloration of pronotum very indistinct, not well defined, only a little darker brown than the rest; forehead nearly as dark as in the others; knees a little only darker brown at extreme apex; the green colour of tibiae very distinct.

The specimen from Singapore, 1911, represents an intermediate type between the two others.

Hitherto known from Malay Peninsula (Johore, Perak) and from Sarawak (Kuching).

Gryllacris signifera (Stoll).

1813. STOLL, Spectres, Saut., p. 26 (*Gryllus Tettigonia signifera*).
1831. SERVILLE, Ann. Sci. Nat., XXII, p. 139 (*maculicollis*).
1839. SERVILLE, Hist. Nat. Ins. Orth., p. 394 (*maculicollis*).
1840. BLANCHARD, Hist. Nat. Ins., III, p. 30.
1842. DE HAAN, Temminck, Verh., Orth., p. 220 (*maculicollis*).
1860. GERSTÄCKER, Arch. f. Nat., XXVI, p. 253 (*maculicollis*).
1869. WALKER, Cat. Derm. Salt. Brit. Mus., I, p. 167 (*maculicollis*), 170.

1871. Walker, Cat. Derm. Salt. Brit. Mus., Suppl., p. 19.
1888. Brunner v. W., Verh. zool.-bot. Ges. Wien, XXXVIII, p. 352 (*maculicollis*).
1902. Krauss, Semon, Zool. Forsch. Austral., V, p. 748 (*maculicollis*).
1906. Kirby, Syn. Cat. Orth., II, p. 144.
1908. Griffini, Boll. Mus. Zool. Anat. Torino, XXIII, 587, p. 9.
1909. Griffini, Atti Soc. It. Sci. Nat., XLVII, p. 179.
1911. Griffini, Riv. Mens. Sci. Nat. Natura, II, p. 19.
1911. Griffini, Ann. Mus. Zool. Petersb., XVI, p. 71.
1911. Griffini, Boll. Mus. Zool. Anat. Torino, XXVI, 636, p. 15.
1911. Griffini, Atti Soc. It. Sci. Nat., L, p. 220.
1911. Griffini, Ann. Mus. Genova, (3) V, p. 119.
1912. Griffini, Sarawak Mus. Journ., I, 2, p. 13.
1912. Griffini, Atti Soc. It. Sci. Nat., LI, p. 219.
1913. Griffini, Tijdschr. Ent., LVI, p. 175, 180, 183.
1913. Griffini, Atti Soc. It. Sci. Nat., LII, p. 221.
1914. Griffini, Atti Soc. It. Sci. Nat., LIII, p. 336.
1914. Griffini, Zool. Jahrb., Abt. Syst., XXXVIII, 3, 4, p. 107.
1915. Bruner, Univ. Stud. Lincoln, XV, 2, p. 268 (*signifer*).
1919. Dammerman, Landbouwdierkunde, p. 255.
1920. Karny, Zool. Mededeel., V, 4, p. 153, 203.
1921. Karny, Natur (Leipzig), XII, 23, p. 309, 310.

This widely spread species, very common in Java, seems to be not so common in Singapore and Malacca. There are 5 ♀ specimens only in the collection of Raffles Museum, from the following localities:

Bukit Lantai, Sungei Ujong (V. Knight coll., July 1910); Cavanagh Rd., Singapore (24 Febr. 1916; V. K. coll.); Singapore (Dec. 1916).

Venation of tegmina in all specimens according my type IV. One of them shows on the left tegmen an interesting variation of this type, whilst the right is quite normal. On the left tegmen the medial vein arises from the radial vein at the usual place, but does not diverge from radius, on the contrary it runs close to radius parallel to it, once more communicating with it at place of beginning of radial sector. Then the medial vein and radial sector are quite united with each other for a short distance, till the middle of tegmen, where the simple media goes off from the radial sector, which is bifurcated before its end.

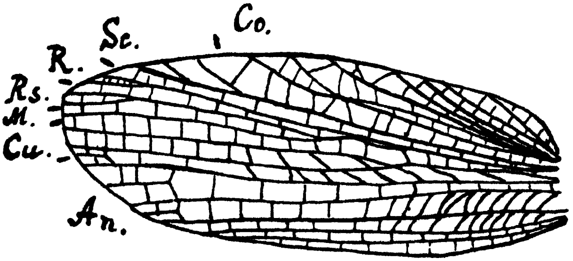


Fig. 3. ***Gryllacris signifera*** **♀, anomalous left tegmen, 2½ times enlarged.**

Distribution: Corea, Philippine Islands, Borneo, Cochinchina, Singapore, Banka, Sumatra, Engano, Bua-Bua, Java.

Gryllacris rufovaria Kirby.

1888. Kirby, Proc. Zool. Soc. Lond., p. 518.
1900. Kirby, Monogr. Christmas Isl., p. 148.
1906. Kirby, Syn. Cat. Orth., II, p. 145.

1 ♂ specimen of this very interesting species is contained in the collection of Raffles Museum. As to the locality Mr. Moulton says (in litt. dat. January 2nd 1923): "It had no label, and I can only assume it came from Chistmas Island because everything else (Lepidoptera, Coleoptera, Hymenoptera) in the box is labelled Christmas Island 1904."

The species was originally described by Kirby from 1 male and 4 females, from Christmas Island, and since it was not yet rediscovered hitherto.

Veins of tegmina arranged according type IV. ♂ genitalia type E, similar to *G. fuscifrons,* but the horn-like projections on the last tergits shorter and stouter, more tooth-like. Subgenital plate also similar shaped as in *fuscifrons,* but the lobes more regular, the excision between them obtuse-angulate, in *fuscifrons* rounded.

Vertex and the dorsum of head and pronotum pale yellowish brown, quite concolorous, entirely without darker markings, whilst not so in the closely allied species, viz. in *fuscifrons* vertex being blackish, in *variabilis* pronotum marked with dark lines. Tegmina paler and more greyish than in *fuscifrons,* where they are orange brown. Wings having "the cross nervures blackish, bordered with dusky on each side" (Kirby), the greyish borders narrower and paler even than in *signifera,* much paler and narrower than in *fuscifrons.*

The specimen before me is positively not freshly emerged, and the colour must therefore be considered as typical for this species.

Gryllacris maculata Giebel.

1861. Giebel, Zeitschr. ges. Naturw., XVIII, p. 116.
1871. Walker, Cat. Derm. Salt. Brit. Mus., Suppl., p. 19.
1906. Kirby, Syn. Cat. Orth., II, p. 144.
1911. Griffini, Atti Soc. It. Sci. Nat., L, p. 24.

Gryllacris maculata var. **nobilis** Walker.

1869. Walker, Cat. Derm. Salt. Brit. Mus., I, p. 182 (*Gr. nobilis*).
1888. Brunner v. W., Verh. zool.-bot. Ges. Wien, XXXVIII, p. 353 (*Gr. lugubris*).
1906. Kirby, Syn. Cat. Orth., II, p. 145 (*Gr. nobilis* and *lugubris*).
1909. Griffini, Atti Soc. It. Sci. Nat., XLVII, p. 313 (*Gr. nobilis*).
1911. Griffini, Atti Soc. It. Sci. Nat., L, p. 24.
1913. Griffini, Tijdschr. Ent., LVI, p. 185.
1914. Griffini, Atti Soc. It. Sci. Nat., LIII, p. 339.

Represented in the collection of Raffles Museum by 10 specimens (4 ♂♂, 6 ♀♀) from Singapore (7th Mile Stone, Bukit Timah.—28.11.1907, coll. by Dr. Falshaw.—Cavanagh Rd., June and Sept. 1913, V. K. coll.—27 Sept. 1913, coll. H. Overbeck.—April 1914.—April 1921, Capt. Bartlett coll.).

Venation of tegmina according type IV in all specimens. One of the ♀ ♀ has the right tegmen normal, whilst the left shows a remarkable abnormality similar to that described from *Gr. signifera*, but the basal part of medial vein is wanting. Therefore arises from the radial vein before its middle, one common shaft divided after a very short distance into the simple media and the radial sector, which emits before its end 3 branches backwards.

Distribution: Singapore, Java.

I have hitherto not yet found this species in Java, whilst it seems to be the commonest species of Singapore, because it is represented by so many specimens in the Raffles Museum.

Gryllacris kledangensis n. sp.

♀. Large, reddish brown; vertex not darker than the remaining surface of head.

Head ovate, as seen in front, hardly wider than pronotum. Occiput and vertex strongly convex; the latter somewhat wider than the first antennal joint, with blunt lateral margins; 3 yellow ocelli-

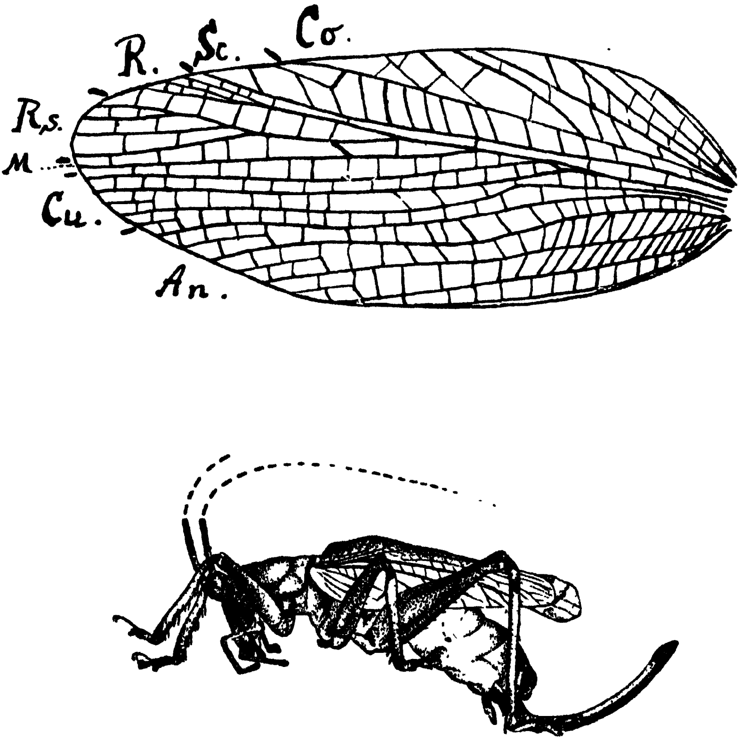


Fig. 4. ***Gryllacris kledangensis.*** **Above: Fore wing, 2½ times enlarged.—Beneath: total, lateral view, natural size.**

form spots present. Forehead depressed in its lower part, nitid, with distant, impressed punctures. Antennae and mouth parts coloured as body.

Pronotum moderately large, about as long as wide. Fore margin rounded, somewhat produced in its middle; fore sulcus deeply impressed; longitudinal furrow indistinct, reduced to a round dimple in the middle of disc. The two posterior sulci close to each other, the hindermost close to the hind margin; metazona between them convex. Disc behind the anterior furrow distinctly convex. Hind margin straight, truncate. Lateral lobes distinctly longer than high, roundly inserted, with rounded fore angle, and obliquely truncate hind angle: lower margin somewhat descendent backwards; humeral sinus hardly distinguishable. The U-shaped sulcus deeply impressed, the posterior one less, but also distinct; space between them hump-shaped arched.

Tegmina a little overreaching the hind knees and end of abdomen, somewhat pointed at apex, brownish yellow, with yellowish brown veins. Venation according to type IV. Radial vein and sector with 3 branches (except the ends of veins themselves); sector arising a little before the middle of tegmina; medial vein simple, arising from radius till somewhat closer to base. Cubital vein on right tegmen divided before the middle into two simple branches. Left tegmen of the specimen before me shows a very remarkable abnormality: here the cubital vein seems to be simple; but proximally from beginning of media goes off from radial vein a bifurcate longitudinal vein, representing the anterior branch of cubitus, here divided into two.

Wings pale brownish yellow, with brownish veins, the transversal ones (except before radial vein) broadly bordered with dusky on each side: the last row of cross veins (before the wing margin) very narrow infumated; basal part of wing unicolorous, yellowish, because there are no transversal veins. The dark stripes between radial vein and sector not as dark as those of anal field, but not narrower.

Legs moderately long, stout, pilose, of the same colour as body. Fore and middle femora unarmed. Hind femora beneath on each side with 7-8 spines, which are blackish at apex. Fore and middle tibiae with four pairs of long, movable spines beneath, which are pale yellowish at extreme apex. Hind tibiae cylindrical in basal fifth only, then plain above, on each side above with spines, blackish at apex, on outside 7, on inside 6.

Ovipositor longer than the hind femora, somewhat curved upwards, obliquely truncate at apex, of the same colour as body. Subgenital plate (♀) longer than wide at base, with a prominent median keel: sides converging backwards at base, then nearly parallel, at last converging again towards the apex, which is sharply triangularly excised.

Length of body 40 mm. (somewhat extended), of pronotum 8 mm., of tegmina 34 mm., width of tegmina 12.7 mm., length of hind femora 20.5 mm., of ovipositor 26 mm.

This new species comes nearest perhaps to Griffini's "spec. indeterm." from Mentawei (Ann. Mus. Genova (3) V, p. 120), but differs by its larger size, the longer ovipositor, and the well defined cross-bands of wings. It reminds one in size and its whole appearance of *fuscifrons* Gerst., but diverges from it by the pale vertex and basal joints of antennae, by the ocelliform spots somewhat larger and less well defined, and by the much longer ovipositor; the cross-bands of wings are a little broader than in *fuscifrons;* the subgenital plate of ♀ of a similar shape, but with more sinuated lateral margins and the excision at apex more pointed. In its measurements, *kledangensis* agrees very well with the Moluccan *compromittens* except the hind femora are somewhat shorter and the ovipositor is somewhat longer; it may distinguished from it by the paler, not orange coloured wings, and the shape of subgenital plate of ♀.

1 ♀ from Gunong Kledang, Ipoh, Perak (March 1898).

Gryllacris peraka n. sp.

♂. Very similar to the preceding species, but somewhat smaller, and the cross-bands of wings narrower.

Moderately large, yellowish brown; head, antennae and mouthparts unicolorous, except the three ocelliform spots of vertex, and

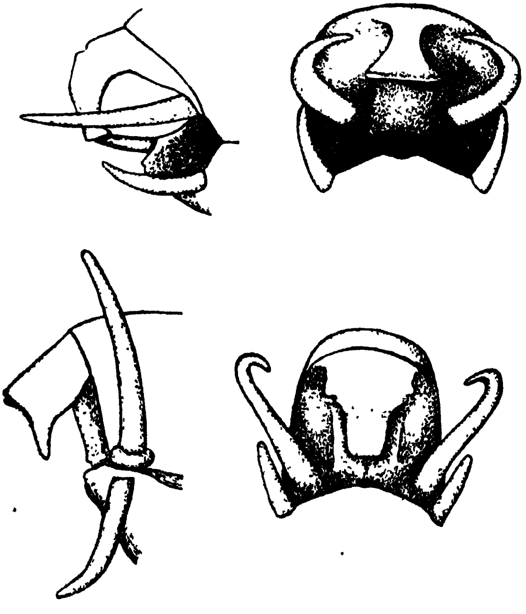


Fig. 5. End of ♂ abdomen of *Gryllacris signifera* (above), and *Gr. Peraka* (beneath). Left: lateral view; right: seen from behind. Enlarged.

the somewhat paler, yellowish clypeus. Pronotum somewhat darker reddish brown along the furrows, but these markings not well defined.

Head as wide as pronotum, nearly ovate, as seen in front, somewhat conical beneath against the mouth-parts. Occiput and vertex strongly convex, smooth, shining; the latter punctured in front, about one and a half times as wide as the first antennal joint, with blunt lateral margins, and with 3 yellow ocelliform spots. Forehead strongly depressed in its lower part, nitid, with impressed punctures.

Pronotum moderately large, a little wider than long. Fore margin rounded, a very little produced in the middle; fore furrow deeply impressed; longitudinal sulcus shallow, distinguishable in the middle part of disc only. From the transition of anterior sulcus into the U-shape of lateral lobes runs an oblique furrow towards the middle of disc, thus dividing the arched fore part of the latter in a median hump slightly divided by the longitudinal sulcus, and in a lateral one on each side. The two posterior cross-furrows not very close to each other, the hindermost tightly at the hind margin. This prominent at extreme border, straight, truncate. Lateral lobes not very adpressed, distinctly longer than high, with the fore angle more rounded, the hind angle more obliquely truncate; lower margin with prominent border, a very little descending backwards; humeral sinus hardly visible. Sulci and space between them as in the preceding species.

Tegmina somewhat overreaching the hind knees and end of abdomen, somewhat pointed at apex, brownish yellow, with yellowish brown veins. Venation according to type IV. Radial vein and sector divided into 3 branches (enclosing the ends of veins themselves); sector arising in the middle of tegmen. Cubital vein bifurcate, on the right tegmen before, on the left behind the middle.

Wings somewhat paler, more hyaline, than in the preceding species, with the cross-bands somewhat narrower; otherwise quite as in *kledangensis*. Cross-bands distinctly narrower than in *fuscifrons*, but wider than usual in *signifera*; but there is one specimen of the latter species in the collection of Buitenzorg Museum (from Buitenzorg, 30, VII, 1920; coll. H. C. Siebers), which has the cross-bands as wide and dark as *peracca*, head, pronotum and legs sharply marked with black, and otherwise not different from the true *signifera*.

Legs quite as in *kledangensis*.

End of ♂ abdomen according to Brunner's type H; upper part of ninth tergite with a blunt tooth on each side, then produced down into a rounded-rectangular plate higher than wide. Subgenital plate (♂) broadly rounded behind, very slightly emarginated at extreme apex (much less than in *signifera*).

Length of body 29.5 mm., of pronotum 6.5 mm., of tegmina 29 mm., width of tegmina 10.5 mm., length of hind femora 18 mm.

1 ♂ from Gunong Kledang, Perak (2646′; Nov. 1916).

In size and whole appearance very similar to *Gr. signifera*, but without black markings on head and pronotum, and with a different end of ♂ abdomen.

Diverging from Griffini's "spec. indeterm." from Mentawei, by the somewhat larger size, the distinct, broad wing-bands, and the presence of ocelliform spots on vertex.

Gr. rufovaria Kirby from Christmas Island, finally, may be distinguished from *peracca* by the two or three outer rows of cross-nervures of wings not bordered with dusky, and by the last segment of ♂ abdomen terminating in two short, stout, conical projections.

Gryllacris griffinii n. sp. (Plate II, fig. 1).

♂. Of smaller size. Brownish yellow, pronotum and legs with black marking. Head dark castaneous-brown.

Head obconical, as seen in front; eyes not very much protruding. Occiput and vertex somewhat convex; the latter with subacute lateral margins, about one and a half times as wide as the first antennal joint. Three ocelliform spots present, very small, well defined, pale yellow, bordered with black. The whole forehead roughened by deeply impressed dots. Subocular furrows broad and shallow. Clypeus paler reddish brown, yellowish brown at apex. Mandibles very dark castaneous. Palpi long and slender, yellowish, dark at apex. First antennal joint castaneous, with a small black spot near the eye; the following 6 joints reddish brown, dark at apex. The following joints gradually yellowish brown, uniformly coloured.

Pronotum rounded at the fore margin, somewhat produced in the middle; furrows very shallow, hardly visible; longitudinal sulcus more distinctly impressed in the middle of disc. Disc convex. Hind margin linear, prominent, truncate. Lateral lobes with the fore and hind angle blunt, obliquely truncate behind, without a humeral sinus; lower margin distinctly descending backwards, somewhat emarginated above the fore coxae. All margins prominent. The U-shaped and posterior sulcus deeply impressed; the space between them strongly convex.

Colour of pronotum brownish yellow, with the fore and hind margin castaneous, the latter black in its middle. Lower and hind margin of lateral lobes very broadly bordered with black. Behind the middle of fore margin a longitudinal black spot on the disc, behind it a black line along the median furrow. On each side of it an oblique black stripe running from behind its end towards the sides of fore margin, before the latter emitting a short branch against the first black spot. On the sides of disc a second black stripe with an obliquely backwards directed branch near its middle and a second one at the end.

Tegmina a very pale yellowish, somewhat rounded at apex, distinctly overreaching the hind knees and end of abdomen, with yellow longitudinal veins, and broadly blackish bordered cross-nervures. Venation according to type IV, somewhat reduced. Radial vein and sector bifurcate only (on right tegmen) or divided into three branches (left). Radial arising from radius in the middle of tegmen; media going off from radial vein somewhat before the sector, simple. Cubital vein bifurcate in the vicinity of beginning of media.

Wings very pale yellowish, nearly hyaline, of cycloid type; their veins near the fore margin yellowish brown, the others dark. All cross veins broadly bordered with blackish on each side, the hyaline space between them not or not much wider than the dark bands. Extreme base of wing entirely infumated.

Pro-, meso-, and metapleurae with well defined black spots.

Legs short, very stout. Hind femora with 4 very small, dark spines on outer and 2 on inner margin, before the end. Fore and middle tibiae with 4 pairs of long, movable, unicolorous yellowish spines beneath. Hind tibiae cylindrical in basal third, then plain above, with 6 dark castaneous spines on each side; beneath with one yellowish spine only on each side before the apical spurs.

Colour of legs yellow, marked with black, tarsi darker, reddish brown. Fore femora entirely black on inside; beneath yellow at base only, the remaining part black; outside yellow at base, black at apex, beneath reaching the black colour farther to base, above the yellow farther towards the knee. Fore tibiae entirely black, except the spines and an indistinct paler longitudinal spot along the front margin. Middle femora on outer surface as coloured in the fore pair, but the black band before the knee interrupted by yellow; the knee itself blackish; inside with a longitudinal black spot along the lower margin in the distal half. Middle tibiae yellow, with a black spot below the knee. Hind femora yellow, on outer surface with a black longitudinal stripe along the lower margin; below with a blackish spot before the knee; a second smaller one on inner surface near lower margin. Hind tibiae coloured as in the middle ones.

Abdomen yellow; eighth tergite laterally and along the hind margin black; ninth segment black at base and along the median furrow. End of abdomen (♂) according to Brunner's type A. Eighth segment not produced; ninth segment sharply curved downwards, with a deep and broad longitudinal sulcus: at the end slightly emarginated, with rounded, blunt lobes. Cerci not longer than ninth segment along the median sulcus. Subgenital plate triangular, about half as long as wide at base, sharply pointed at apex. Styles very short, scarcely twice as long as wide.

Length of body 20 mm., of pronotum 4 mm., of tegmina 20.5 mm., width of tegmina 6.5 mm., length of hind femora 10.8 mm.

I have allowed myself the pleasure of naming this beautiful coloured species after the celebrated Italian Entomologist Prof. Dr. Achille Griffini of Bologna, in acknowledgment of his numerous, important publications on Gryllacridae.

1 ♂ from Gunong Angsi, Negri Sembilan (2000′-2790′: April 1918).

This new species belongs without doubt to the *podocausta*-group, and seems to be nearest to the Sumatran *modiglianii* Griffini; but diverging from it by the strong puncture of forehead, the distinct ocelliform spots, the stronger markings of pronotum, the broadly blackish bordered cross-veins of tegmina, the less numerous spines of hind femora and the coloration of legs.

Gryllacris podocausta De Haan.

1842. DE HAAN, Temminck, Verh., Orth., p. 220.
1860. GERSTÄCKER, Arch. f. Nat., XXVI, p. 259.
1869. WALKER, Cat. Derm. Salt. Brit. Mus., I, p. 173.
1888. BRUNNER v. W., Verh. zool.-bot. Ges. Wien, XXXVIII, p. 329.
1891. PICTET & SAUSSURE, Mitth. Schweiz. Ent. Ges., VIII, p. 307 (*mutabilis*).
1906. KIRBY, Syn. Cat. Orth., II, p. 142 (*mutabilis*), 140.
1908. GRIFFINI, Boll. Mus Zool. Anat. Torino, XXIII, 581, p. 1.
1909. GRIFFINI, Mon. Zool. It., XX, 4, p. 109.
1909. GRIFFINI, Ann. Mus. Nat. Hungar., VII, p. 307.
1909. REHN, Bull. Amer. Mus. Nat. Hist., N. Y., XXVI, 13, p. 206.
1911. GRIFFINI, Ann. Mus. Zool. Petersb., XVI, p. 71.
1911. GRIFFINI, Atti Soc. It. Sci. Nat., L, p. 216.
1911. GRIFFINI, Ann. Mus. Genova, (3) V, p. 81, 124.
1913. GRIFFINI, Tijdschr. Ent., LVI, p. 175, 186.
1913. GRIFFINI, Atti Soc. It. Sci. Nat., LII, p. 224.
1920. KARNY, Zool. Mededeel., V, 4, p. 147, 202.

Gryllacris podocausta var. **pallidior** Pictet & Saussure.

1888. BRUNNER v. W., Verh. zool.-bot. Ges. Wien, XXXVIII, p. 341 (*parvula*, nec WALKER).
1891. PICTET & SAUSSURE, Mitth. Schweiz. Ent. Ges., VIII, p. 307, 309 (*mutabilis v. p.*).
1906. KIRBY, Syn. Cat. Orth., II, p. 142 (*Gr. minima*).
1908. GRIFFINI, Boll. Mus. Zool. Anat. Torino, XXIII, 581, p. 1 (*podocausta var. mutabilis*).
1909. GRIFFINI, Atti Soc. It. Sci. Nat., XLVII, p. 174 (*podocausta* var. *mutabilis*).
1909. GRIFFINI, Ann. Mus. Nat. Hungar., VII, p. 308 (*podocausta var. mutabilis*).
1911. GRIFFINI, Ann. Mus. Genova, (3) V, p. 82.
1911. GRIFFINI, Atti Soc. It. Sci. Nat., L, p. 217.
1913. GRIFFINI, Tijdschr. Ent., LVI, p. 187.

1 ♂ from Selangor; somewhat pale, apparently discoloured, the usual dark markings fusco-castaneous, less well defined than in typical specimens. By these characters the specimen seems to be intermediate between the typical *podocausta* and the *var. pallidior.* Size somewhat larger than the Javanese specimens of Buitenzorg Museum (and than the measurements given by Brunner).

Length of body 21.5 mm., of pronotum 5 mm., of tegmina 19.5 mm., of hind femora 11 mm.

Venation of tegmina somewhat reduced, about intermediate between type IV and V; on the left tegmen normal (medial vein arising from radius), on the right tegmen media arising from cubitus. Such a variation is not uncommon amongst the species belonging to type V.

Was hitherto recorded only from Java and Sumatra.

Gryllacris podocausta subsp. **kuchingiana** Griffini.

1911. Griffini, Boll. Mus. Zool. Anat. Torino, XXVI, 636, p. 11.
1912. Griffini, Sarawak Mus. Journ., I, 2, p. 12.

1 ♂ from Govt. Hill, Singapore (June 1910; K. A. W. coll.). Agrees perfectly with the description given by Griffini, but has not only the fore, but also the middle tibiae entirely black.

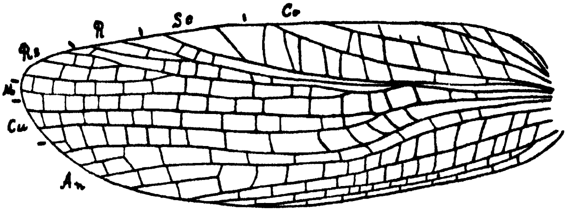


Fig. 6. Left tegmen of *Gryllacris podocausta kuchingiana.* 3½ times enlarged.

Venation of tegmina as mentioned in *podocausta*, right tegmen normal, on the left medial vein going off not from radius itself, but from radial sector, similar as described from 1 ♀ of *maculata nobilis*.

The subspecies *kuchingiana* was hitherto known from Sarawak (Kuching) only.

FAM. *TETTIGONIIDAE.*

Subfam. ***Phaneropterinae.***

Genus **Elimaea** Stål

1874. Stål, Rec. Orth., II, p. 11, 27.
1878. Brunner v. W., Mon. Phan., p. 90.
1891. Brunner v. W., Verh. zool.-bot. Ges. Wien, XLI, p. 45.
1906. Kirby, Syn. Cat. Orth., II, p. 394.

Elimaea caricifolia (De Haan).

1842. De Haan, Temminck, Verh, Orth., p. 193 (*Locusta Phaneroptera*).
1870. Walker, Cat. Derm. Salt. Brit. Mus., III, p. 478 (*Phaneroptera?*).
1878. Brunner v. W., Mon. Phan., p. 97 (*femorata*).
1891. Brunner v. W., Verh. zool.-bot. Ges. Wien, XLI, p. 46 (*femorata*).
1906. Kirby, Syn. Cat. Orth., II, p. 396 (*caricifolia, femorata*).
1906. Dohrn, Stett. Ent. Zeit,. 67, II, p. 345.
1920. Karny, Zool. Mededeel., V, 4, p. 182, 209.

1 ♀ from Lundu, Sarawak (24 April 1913).

Known from Borneo, Sumatra (Langkat), and Western Java.

Elimaea signata Brunner v. W.

1878. Brunner v. W., Mon. Phan., p. 99.
1903. ?Krauss, Semon, Zool. Forsch. Austral., V, p. 748, 762.
1906. Kirby, Syn. Cat. Orth., II, p. 396.
1906. Dohrn, Stett. Ent. Zeit., 67, II, p. 348 (*var. adspersa*).
1910. Kirby, Syn. Cat. Orth., III, p. 573.

2 ♀ ♀ from Singapore (24. May 1921.—Bukit Timahi; 17. July 1911).

Originally described from Bukit near Singapore, the *var. adspersa* from Sumatra. The indication from Java (Krauss) belongs perhaps to *parumpunctata.* I have collected at the same locality (Tjibodas) the latter species, but never *signata.*

Elimaea moultonii n. sp.

♀. Yellowish-green, with the disc of pronotum yellow with a few small black dots, and on each side with a sharp black line constricted near the middle. Head without black dots. Vertex narrow, pointed, longitudinally sulcate. Antennae blackish, especially on outer and lower side, and with some distant pale rings. Disc of pronotum constricted near the middle, convex in front, with roundly inserted lateral lobes; behind excavate with somewhat protruding lateral margins; hind lobe broadly rounded, finely bordered with black; lateral lobes a little longer than high, broadly rounded, with some small blackish dots in the upper part. Fore coxae not spined. Meso- and metasternal lobes nearly elliptical, rounded. Tegmina about twice as long as abdomen, a little wider than the length of pronotum; radial branch going off from the radial vein near the middle; all areas with regular, parallel transverse veins; anterior area unicolorous; middle field with a few blackish dots in the middle of each cell; posterior area densely dotted with blackish. Hind wings distinctly exceeding the tegmina. Fore femora strongly compressed, curved, sharply edged above, and furnished with small black spines below, 6 on the inner (anterior) margin, and 3 on the outer one. Middle femora with about a dozen spines below along the outer margin; posterior femora with only a few very small ones. Lobes covering the tympana a very little arched, adpressed. Ovipositor curved upwards, wide, compressed; its upper margin serrate along the whole length, the lower one near the apex only. Subgenital plate (♀) nearly quadrate, but semicircularly emarginated at the hind margin, with long, sharply pointed, backwards directed lobes.

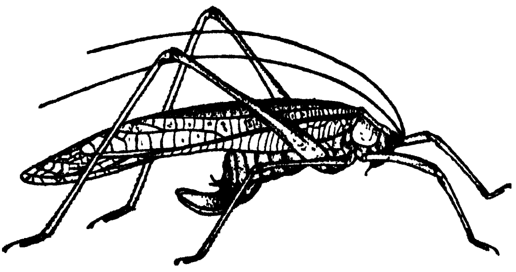


Fig. 7. *Elimaea moultonii,* natural size. Del. Soehanam.

Length of body 22 mm., of pronotum 4.5 mm., of tegmina 38 mm., width of tegmina 6 mm., length of intermediate femora 12.5 mm., of hind femora 25 mm., of ovipositor 7 mm.

I have the pleasure to name this very characteristic species after its discoverer Mr. J. C. Moulton.

There are 2 ♀ ♀ of *E. moultonii* in the collection of Raffles Museum, from Long Akar and Lio Matu, Baram River, Sarawak (30 Aug. and 16 Oct. 1920; leg. J. C. Moulton).

This species comes nearest amongst the hitherto known *Elimaeas* to *puncticosta* Bolivar, and differs from it especially by the coloration of pronotum, the later arising radial branch, and the shape of subgenital plate of ♀. *E. puncticosta* was described by I. Bolivar without indication of locality in a paper containing several new species from Himalaya and the Philippine Islands. Mr. C. Bolivar, however, informs me (*in litt.*) that the type specimens originate from the Philippine Islands (Mindanao, Samar).

Elimaea chloris (De Haan).

1842. DE HAAN, Temminck, Verh., Orth., p. 192 (*Locusta Phaneroptera*).
1869. WALKER, Cat. Derm. Salt. Brit. Mus., II, p. 380 (*Phylloptera?*).
1878. BRUNNER v. W., Mon. Phan., p. 100.
1891. KARSCH, Berl. Ent. Zeitschr., XXXVI, 1, p. 208.
1893. BRUNNER v. W., Ann. Mus. Genova, (2) XIII, p. 167.
1899. KRÜGER, Zuckerrohr u. s. Kultur, p. 319.
1904. KRAUSZE, Ins. Börse, XXI.
1906. KIRBY, Syn. Cat. Orth., II, p. 396.
1906. v. DEVENTER, Dierl. Vijanden v. h. Suikerriet, p. 281 (2e druk 1912).
1915. KONINGSBERGER, Java Zoölog'sch en Biologisch, p. 278.
1919. DAMMERMAN, Landbouwdierkunde, p. 101.
1920. KARNY, Zool. Mededeel., V, 4, p. 209.

This common and widely distributed species is represented in the collection of Raffles Museum in both sexes from the following localities:

Penang (1,500′-2,428′; May 1917).—Gunong Kledang, Perak (2,646′; Nov. 1916).—Gunong Angsi, Negri Sembilan (2,000′-2,790′; April 1918).—Mt. Ophir, Johore (14-15 Aug. 1905).—Kedah Peak (Dec 1915).—Tebing Tinggi, Kelantan (July 1920; coll. V. Knight).

Further distribution: Java, Sumatra, Bhamò, Cambodia, Annam, China.

Genus **Mirollia** Stål.

1873. STÅL, Oefv. Vet.-Akad. Förh, XXX (4), p. 42.
1874. STÅL, Rec. Orth., II, p. 12.
1878. BRUNNER v. W., Mon. Phan., p. 106.
1891. BRUNNER v. W., Verh. zool.-bot. Ges. Wien, XLI, p. 6.
1906. KIRBY, Syn. Cat. Orth., II, p. 398.

Mirollia carinata (De Haan).

1842. DE HAAN, Temminck, Verh., Orth., p. 199 (*Locusta Phylloptera*).
1860. STÅL, Eugenies Resa., Orth., p. 321 (*Phaneroptera*).
1869. WALKER, Cat. Derm. Salt. Brit. Mus., II, p. 381 (*Phylloptera*).
1874. STÅL, Rec. Orth., II, p. 27.
1878. BRUNNER v. W., Mon. Phan., p. 107.

1891. Karsch, Berl. Ent. Zeitschr., XXXVI, 1, p. 208.
1892. Dohrn, Stett. Ent. Zeit., LIII, p. 66.
1906. Kirby, Syn. Cat. Orth., II, p. 398.
1920. Karny, Zool. Mededeel., V, 4, p. 184, 209.
1921. Karny, Phil. Journ. Sci., XVIII, 5, p. 613.

1 ♀ from Gunong Tamabo, Baram River, Sarawak (15. XI. 1920; J. C. Moulton).

This species was hitherto known from Sumatra, Java, and the Philippine Islands (Luzon), but not yet from Borneo.

Genus **Ducetia** Stål.

1874. Stål, Rec. Orth., II, p. 11.
1878. Brunner v. W., Mon. Phan., p. 108.
1891. Brunner v. W., Verh. zool.-bot. Ges. Wien, XLI, p. 53.
1902, 03. Jacobson & Bianchi, Orth. Pseudoneur. Russ., p. 324, 336, 374.
1906. Kirby, Syn. Cat. Orth., II, p. 398.
1908. Matsumura & Shiraki, Journ. Coll. Agric., Sapporo, III, 1, p. 5.

Ducetia thymifolia (Fabricius).

1775. Fabricius, Syst. Ent., p. 283 (*Locusta*).
1815. Thunberg, Mem. Acad. Petersb., V, p. 282 (*Locusta japonica*).
1842. De Haan, Temminck, Verh., Orth., p. 193 (*Locusta Phaneroptera quinquenervis*).
1869. Walker, Cat. Derm. Salt. Brit. Mus., II, p. 341 (*Phaneroptera quinquenervis*), 342 (*Phan. neochlora*), 344 (*Phan. privata*), 348 (*Phan. thymifolia?*).
1874. Stål, Rec. Orth., II, p. 26 (*japonica*).
1878. Brunner v. W., Mon. Phan., p. 110 (*japonica*).
1891. Brunner v. W., Verh. zool.-bot. Ges. Wien, XLI, p. 53 (*japonica*).
1891. Karsch, Berl. Ent. Zeitschr., XXXVI, 1, p. 208 (*quinquenervis*, *japonica*).
1893. Brunner v. W., Ann. Mus. Genova, (2) XIII, p. 168 (*japonica*).
1902, 03. Jacobson & Bianchi, Orth. Pseudoneur. Russ., p. 336, 374 (*japonica*).
1904. Krausze, Ins. Börse, XXI (*japonica*).
1906. Kirby, Syn. Cat. Orth., II, p. 398.
1908. Matsumura & Shiraki, Journ. Coll. Agric., Sapporo, III, 1, p. 6 (*japonica*).
1909. Rehn. Bull. Amer. Mus. Nat. Hist., N. Y., XXVI, 13, p. 192 (*japonica*)
1915. Bruner, Univ. Stud. Lincoln, XV, 2, p. 276.
1915. Karny. Suppl. Ent., p. 76.
1920. Karny. Zool. Mededeel., V, 4, p. 209.
1921. Karny, Phil. Journ. Sci., XVIII, 5, p. 613.

1 ♂ from Thompson Road, Singapore (28 May 1911), and 1 ♀ from Changi, Singapore (Aug. 1911).

This species was hitherto known from the following localities: India. Ceylon, Cochin- China, Cambodia, Sumatra, Java, Lombok, Borneo. Philippine Islands, Formosa, Japan, and Australia.

Genus **Scambophyllum** Brunner v. W.

1878. Brunner v. W., Mon. Phan., p. 134.
1891. Brunner v. W., Verh. zool.-bot. Ges. Wien., XLI, p. 8.
1906. Kirby, Syn. Cat. Orth., II. p. 405.

Scambophyllum sanguinolentum (Westwood).

1848. Westwood. Cab. Orient. En., p. 52 (*Phylloptera sanguinolenta*).
1869. Walker, Cat. Derm. Salt. Brit. Mus., II, p. 381 (*Phylloptera ?? sanguinolenta*).

1878. Brunner v. W., Mon Phan., p. 135.
1891. Karsch, Berl. Ent. Zeitschr., XXXVI, 1, p. 210.
1891. Brunner v. W., Verh zool.-bot. Ges. Wien, XLI, p. 63.
1906. Kirby, Syn. Cat. Orth., II, p. 405.

This beautiful species is represented in the collection of Raffles Museum from the following localities: Lebong Tandai, Sumatra (July 1918, C. J. Brooks coll., 1 ♂).—Maxwell's Hill, Perak (2.100'; 19 April 1904; 1 ♂).—Gunong Angsi, Negri Sembilan (2.000'-2.790'; April 1918; 2 ♂ ♂, 1 larve).—Gunong Kledang, Perak (2.646'; Nov. 1918; 1 ♂, 1 larve).

This species was hitherto known only from Sumatra.

Genus **Zulpha** Walker.

1870. Walker, Cat. Derm. Salt. Brit. Mus., III, p. 478.
1878. Brunner v. W., Mon. Phan., p. 141 (*Eurypalpa*).
1891. Brunner v. W., Verh. zool.-bot. Ges. Wien, XLI, p. 9 (*Eurypalpa*).
1906. Kirby, Syn. Cat. Orth., II, p 408.

Zulpha perlaria (Westwood).

1848. Westwood, Cab. Orient. Ent., p. 33 (*Phaneroptera*).
1870. Walker, Cat. Derm. Salt. Brit. Mus., III, p. 479.
1878. Brunner v. W., Mon. Phan., p. 142 (*Eurypalpa*).
1891. Karsch, Berl. Ent. Zeitschr., XXXVI, 1, p. 210.
1893. Brunner v. W., Ann. Mus. Genova, (2) XIII, p. 168 (*Eurypalpa*), 177 (*Sathrophyllia*).
1904. Krausze, Ins. Börse, XXI (*Eurypalpa*).
1906. Kirby, Syn. Cat. Orth., II, p. 408.
1922. Karny, Natür (Leipzig) XIII, 13, p. 207.

1 ♂ from Kedah Peak (Dec. 1915), 1 ♂ from Kledang, Perak (2,646'; Nov. 1916), and 6 ♂ ♂ from Bukit Kutu, Selangor (April 1915), agreeing perfectly with the description given by Brunner, but having the tegmina distinctly wider (9 mm.).

Distribution: India, Carin Ghecù, Tonkin (Than-Moi), Sumatra, Java, Borneo, Penang.

Genus **Leptoderes** Serville.

1839. Serville, Hist. Nat. Ins. Orth., p. 409.
1869. Walker, Cat. Derm. Salt. Brit. Mus., II, p. 360.
1878. Brunner v. W., Mon. Phan., p. 142 (*Leptodera*).
1891. Brunner v. W., Verh. zool.-bot. Ges. Wien, XLI, p. 70 (*Leptodera*).
1898. Saussure, Rev. Suisse Zool., V, p. 228, 806 (*Euparthenus*).
1906. Kirby, Syn. Cat. Orth., II, p. 408.

Leptoderes ornatipennis Serville.

1839. Serville, Hist. Nat. Ins. Orth., p. 410.
1841. Charpentier, Orth., pl. 12 (*Leptodera ornata*).
1842. De Haan, Temminck, Verh., Orth., p. 199 (*Locusta Phylloptera*).
1869. Walker, Cat. Derm. Salt. Brit. Mus., II, p. 360 (*ornatipennis, ornata*).
1878. Brunner v. W., Mon. Phan., p. 143 (*Leptodera*).
1891. Brunner v. W., Verh. zool.-bot. Ges. Wien, XLI, p. 70 (*Leptodera*).
1892. Dohrn, Stett. Ent. Zeit., LIII, p. 66 (*Leptodera*).
1898. Sassure, Rev. Suisse Zool., V, p. 229, 806 (*Euparthenus gratiosa*).
1904. Krausze, Ins. Börse, XXI (*Leptodera*).
1906. Kirby, Syn. Cat. Orth., II, p. 408.
1915. Bruner, Univ. Stud. Lincoln, XV, 2, p. 276.
1920. Karny, Zool Mededeel. V 4. p 187, 209.

1 ♂ from Gunong Kledang, Perak (2,646′; Nov. 1916). Hitherto known from Java, Sumatra, and Borneo.

Genus **Arnobia** Stål.

1876. STÅL, Bihang Svenska Akad., IV (5), p. 56.
1878. BRUNNER v. W., Mon. Phan., p. 162.
1891. BRUNNER v. W., Verh. zool.-bot. Ges. Wien, XLI, p. 11.
1902, 03. JACOBSON & BIANCHI, Orth. Pseudoneur. Russ., p. 324, 336, 374.
1906. KIRBY, Syn. Cat. Orth., II, p. 423.
1908. MATSUMURA & SHIRAKI, Journ. Coll. Agric., Sapporo, III, 1, p. 11.

Arnobia pilipes (De Haan).

1842. DE HAAN, Temminck, Verh., Orth., p. 194 (*Locusta Phaneroptera*).
1869. WALKER, Cat. Derm. Salt. Brit. Mus., II, p. 341 (*Phaneroptera*).
1878. BRUNNER v. W., Mon. Phan, p . 162.
1891. BRUNNER v. W., Verh. zool.-bot. Ges. Wien, XLI, p. 72.
1902, 03. JACOBSON & BIANCHI, Orth. Pseudoneur. Russ., p. 326, 375.
1904. KRAUSZE, Ins. Börse. XXI.
1906. KIRBY, Syn. Cat. Orth., II, p. 423.
1908. MATSUMURA & SHIRAKI, Journ. Coll. Agric., Sapporo, III, 1, p. 11.
1909. REHN, Bull. Amer. Mus. Nat., N. Y., XXVI, 13, p. 192.
1920. KARNY, Zool. Mededeel., V, 4, p. 209.

2 ♀♀ from the Botanic Gardens of Singapore (11 July 1911), and 1 ♂ from Gunong Angsi, Negri Sembilan (2,000′-2,790′; April 1918).

The species is hitherto known from Malacca, Sumatra, Java, Borneo and Japan.

Genus **Phygela** Stål.

1876. STÅL, Bihang Svenska Akad., IV (5), p. 56.
1878. BRUNNER v. W., Mon. Phan., p. 160.
1891. BRUNNER v. W., Verh. zool.-bot. Ges. Wien, XLI, p. 11.
1906. KIRBY, Syn. Cat. Orth., 11, p. 423.

Phygela haanii Stål.

1876. STÅL. Bihang Svenska Akad., IV (5), p. 56.
1878. BRUNNER v. W., Mon. Phan., p. 161.
1906. KIRBY, Syn. Cat. Orth., II, p. 423.

1 ♀ from Bukit Timah, Singapore (30 June 1911).—4 ♂♂ from Singapore; Mt. Ophir, Johore (22 Aug. 1905); Gurun, Kedah (Dec. 1915); Gunong Kledang, Perak (2,646′; Nov. 1916).

The female is very typical. Males with narrower tegmina (12 mm. wide), but distinctly wider than in the ♂♂ of *marginata*, with a very fine black line along the sides of hind margin of the pronotal hind lobe. Male genitalia as in *Ph. marginata* described by Brunner (Addit. p. 72). Antennae in both sexes uniformly yellowish-brown.

Distribution: Malacca, Singapore;—In the collection of Buitenzorg Museum, there is one specimen (♂) from Western Java.

Genus **Tapiena** Bolivar.

1878. BRUNNER v. W., Mon. Phan., p. 163 (*Tapiena* nec SERV. 1825).
1891. BRUNNER v. W., Verh. zool.-bot. Ges. Wien, XLI, p. 74 (*Tapiena*).
1906. KIRBY, Syn. Cat. Orth., II, p. 424 (*Tapiena*).
1906. BOLIVAR, Mem. Soc. Esp. Hist. Nat., I, p. 334.

Tapiena ensigera n. sp.

♂. Green, body yellowish green, tegmina somewhat nitid. Head and pronotum as in the other *Tapienas*. Radial vein of tegmina with three branches, the first of them going off in the middle and bifurcate before its middle; the others simple, obliquely running to the hind margin. Wings overreaching the tegmina by a triangular, green field of the same state of chitinization as tegmina, a little longer than wide at base.

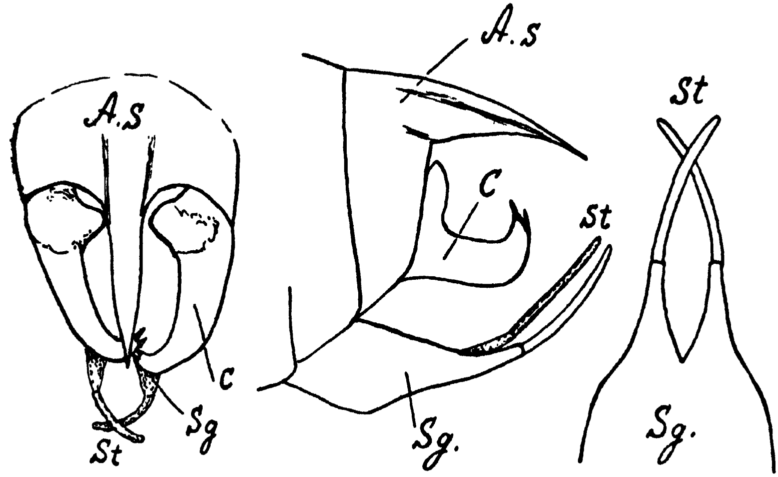


Fig. 8. *Tapiena ensigera*, end of ♂ abdomen. A. s. Anal Segment. C. Cerci. Sg. Subgenital plate. St. Styles.—Enlarged.

Anal segment produced in the middle of hind margin into a long, dapper-shaped process, sharply pointed at apex and reaching to the apex of cerci. These very stout, equally curved inwards,

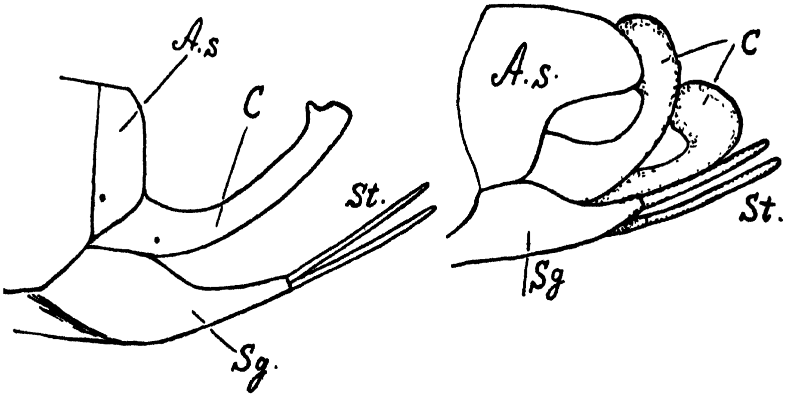


Fig. 9. End of ♂ abdomen of *Tapiena incisa* (left), and *T. bullata* (right). Lateral view, enlarged. A.s. Anal segment. C. Cerci. Sg. Subgenital plate. St. Styles.

with a large triangular processus directed towards the supra-anal plate, at base, and with two short, sharply pointed, black spines at apex. Subgenital plate longer than wide at base, with sinuated lateral margins, deeply triangularly incised at apex nearly to its middle; its lobes long and narrow, nearly cylindrical, bearing very long and slender styles nearly twice as long as the lobes themselves.

Length of body 22-26 mm., of pronotum 5.3-5.6 mm., of tegmina 33-34 mm., width of tegmina 6.8-7.7 mm., length of hind femora 14-15.3 mm.

♀ unknown.

There is no other *Tapiena* hitherto known with such a remarkable formation of apex of abdomen in the ♂.

1 ♂ from Gunong Kledang, Perak (2,646′; Nov. 1916), and 2 ♂ ♂ from Bukit Kutu, Selangor (April 1915; 3,000′-3,460′).

Tapiena bullata n. sp.

♂. General appearance, colour, and venation of tegmina quite as in the preceding species.

Anal segment produced into two arched, rounded lobes, shorter than wide at base. Cerci thickened at base but without a process, then strongly curved inwards, and dilated at the end into a broad, ovate node. Subgenital plate similar as in *ensigera*, but the incision of the shape of an equally-sided triangle, the lobes therefore shorter and wider. Styli not longer than in the preceding species, but nearly three times as long as the lobes of subgenital plate.

Length of body 24 mm., of pronotum 6 mm., of tegmina 35 mm., width of tegmina 8 mm., length of hind femora 16 mm.

♀ unknown.

By the shape of anal segment intermediate between *cucullata* Br. v. W. and *truncata* Br. v. W.

1 ♂ from Gunong Kledang, Perak (2,646′; Nov. 1916).

Tapiena incisa n. sp.

♂. General appearance, colour and venation of tegmina as in the two preceding species.

Anal segment truncate, but triangularly excised in the middle of hind margin. Cerci somewhat slender, crossed at base, blunt at the end and with an obtuse tooth inwards from the apex. Subgenital plate very long and slender, truncate at apex. Styles long and slender, cylindrical, a little curved inwards.

Length of body 21 mm., of pronotum 5.3 mm., of tegmina 34 mm., width of tegmina 7 mm., length of hind femora 15.5 mm.

♀ unknown.

Near to *truncata*, but differing by the incised anal segment, and by the truncate subgenital plate.

1 ♂ from Gunong Tamabo, Baram River, Sarawak (13 Nov. 1920; J. C. Moulton).

Tapiena pentagona n. sp.

♀. Reddish brown; general appearance and venation of tegmina as in the other *Tapiena's* above described.

Ovipositor sickle-shaped, broad, pointed at apex; its lower margin finely serrate at the end. Subgenital plate large, pentagonal, pointed at apex.

Length of body 24 mm., of pronotum 5.2 mm., of tegmina 34 mm., width of tegmina 9 mm., length of hind femora 15.5 mm., of ovipositor 6.5 mm.

1 ♀ from Mt. Ophir, Johore (15 Aug. 1905).

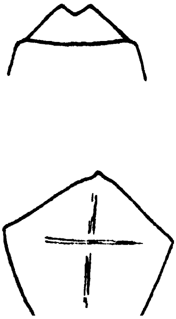


Fig. 10. ♀ subgenital plate of *Tapiena emarginata* (above), and *T. pentagona* (beneath). Enlarged.

Tapiena emarginata n. sp.

♀. Colour, general appearance and venation of tegmina as in *pentagona*. But the subgenital plate small, broadly triangular, distinctly emarginate at apex.

Length of body 24 mm., of pronotum 5.3 mm., of tegmina 32 mm., width of tegmina 8.5 mm., length of hind femora 14.4 mm., of ovipositor 5.5 mm.

1 ♀ from Johore.

Genus **Poecilopsyra** Dohrn.

1892. Dohrn, Stett. Ent. Zeit., LIII, p. 69.
1906. Kirby, Syn. Cat. Orth., II, p. 427.

Poecilopsyra octoseriata (De Haan). (Plate II, fig. 5.)

1842. De Haan, Temminck, Verh., Orth., p. 195 (*Locusta Phaneroptera*).
1870. Walker, Cat. Derm. Salt. Brit. Mus., III, p. 439 (*Tegra*).
1892. Dohrn, Stett. Ent. Zeit., LIII, p. 70.
1906. Kirby, Syn. Cat. Orth., II, p. 427.
1920. Karny, Zool. Mededeel., V, 4, p. 190, 210.

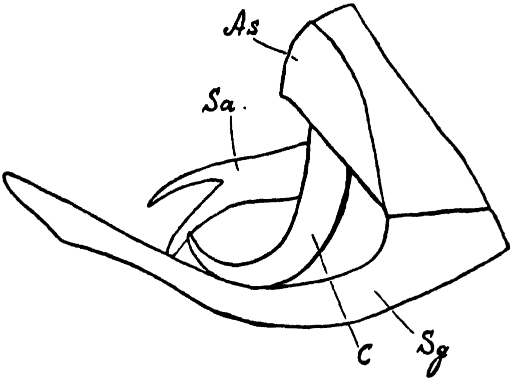


Fig. 11. End of ♂ abdomen of *Poecilopsyra octoseriata*. Lateral view, enlarged. A.s. Anal segment. Sa. Subanal plate. C. Cercus. Sg. Subgenital plate.

♂ (hitherto unknown): Anal segment at the posterior margin with a deep trapezoidal impression. Supra-anal plate small, triangular, with impressed surface and padded margins. Cerci stout, incurved, with the apical part slender, acute. Subgenital plate twice as long as the cerci, laterally keeled, by a deep apical incision divided into two styliform processes, but without articulated styli. Subanal plate with two sharp spines on each side, the lower one nearly as long as the cerci and distinctly longer than the upper one.

Length of body (without subgenital plate!) 22 mm., of pronotum 5 mm., of tegmina 37 mm., width of tegmina 7.4 mm., length of hind femora 19 mm., of subgenital plate 5.7 mm.

1 ♂ from Semangko Pass, Selangor-Pahang (2,700′; March 1912).

The species was hitherto known only from Sumatra and Borneo.

Genus **Elbenia** Stål.

1876. STÅL, Bihang Svenska Akad., IV (5), p. 56.
1878. BRUNNER v. W., Mon. Phan., p. 165.
1891. BRUNNER v. W., Verh. zool-bot. Ges. Wien, XLI, p. 78.
1898. BRUNNER v. W., Abh. Senckenb. Ges., XXIV, p. 254.
1906. KIRBY, Syn. Cat. Orth., II, p. 425.

Elbenia nigrosignata Stål.

1876. STÅL, Bihang Svenska Akad., IV (5), p. 56.
1878. BRUNNER v. W., Mon. Phan., p. 166.
1891. BRUNNER v. W., Verh. zool.-bot. Ges. Wien, XLI, p. 78.
1898. BRUNNER v. W., Abh. Senckenb. Ges. XXIV, p. 254, 255.
1906. KIRBY, Syn. Cat. Orth., II, p. 425.
1909. REHN, Bull. Amer. Mus. Nat. Hist., N. Y., XXVI, 13, p. 192.

1 ♂ from Pahang, a little smaller than the measurements given by Brunner (1878): length of body 19 mm., of pronotum 5 mm., of tegmina 33 mm., width of tegmina 7 mm., length of hind femora 16 mm.

Hitherto known from Sumatra and Malacca.

Elbenia fissa n. sp.

♂. Green; head pale whitish. Antennae unicolorous, pale. Pronotum smooth, broadly rounded behind, lateral lobes about as long as high. Tegmina green, blackish infuscated in the basal half of anal field; first radial branch arising just before the middle, bifurcate in its middle, both branches running into the hind margin; the distal one is on the left tegmen once more bifurcate in its middle, on the right simple; there are further one (left) or two (right) simple, oblique radial branches, directed towards the hind margin. Fore coxae with a sharply pointed spine. Fore femora armed beneath along the fore margin with 5 black spines; middle femora on the outer margin with pale spines; hind femora on both margins furnished with some spines dark at extreme apex.

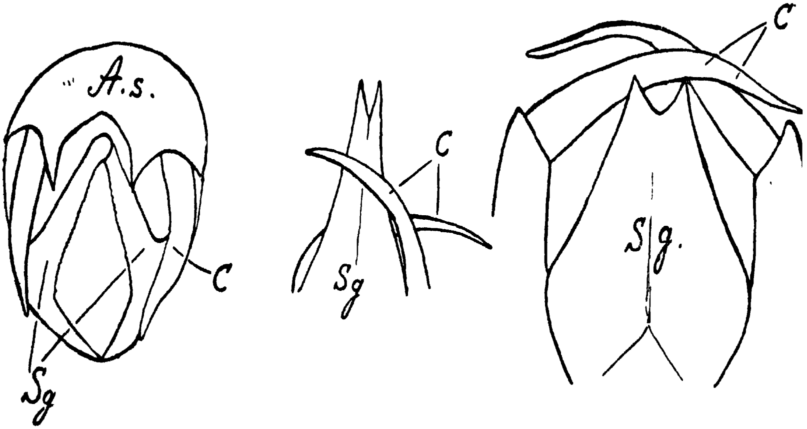


Fig. 12. End of ♂ abdomen of *Elbenia*. Left: *E. nigrosignata*, seen from behind. Middle: *E. fissa*, ventral view. Right: *E. fusca*, ventral view. A.s. Anal segment. C. Cerci. Sg. Subgenital plate.—Enlarged.

Anal segment truncate behind; supraanal plate ovate. Cerci long and slender, curved inwards, crossing each other, sharply pointed, dark at extreme apex. In the only specimen before me one cercus embraces the subgenital plate beneath, the other lies above. Subgenital plate acutely triangular, long and slender, excised at apex by a sharply pointed triangle.

Length of body 18 mm., of pronotum 5 mm., of tegmina 34 mm., width of tegmina 7 mm., length of hind femora 17 mm.

1 ♂ from Kedah Peak (Dec. 1915); and perhaps belongs to the same species also a somewhat damaged specimen from Ayer Molek, Johore (June 1917; Xavier coll.).

This species comes in Brunner's key (1898) close to the Philippine *modesta*, and differs from it at once by the anal field of tegmina infuscated, and by the form of subgenital plate and anal segment of ♂. In its general appearance it agrees perfectly with *nigrosignata*, but the formation of the end of ♂ abdomen is entirely different.

Elbenia fusca n. sp.

♂, ♀. Unicolorous dark brown; the anal field with a blackish spot near the base, especially in ♂, less distinct in ♀. Pronotum practically as in the preceding species. Radial vein of tegmina curved backwards before the apex, obliquely running into the hind margin; moreover with two branches, the second of these simple, obliquely directed towards the hind margin, the first arising before the middle, and bifurcate somewhat before its middle. Fore coxae armed with a sharp spine. Fore femora with some black dots and short, brownish spines beneath. Spines of hind femora darker at extreme apex.

Anal segment of ♂ slightly emarginated behind. Supraanal plate rounded, broader than long. Cerci strongly curved inwards, crossing each other, pointed at apex. Subgenital plate of ♂ similar as in *fissa* but broader and more bluntly emarginated at apex.

Ovipositor sickle-shaped, pointed at apex, longer than pronotum; its margins practically smooth. Subgenital plate of ♀ large, arched, bluntly triangular, emarginated at apex.

	♂	♀
Length of body	22 mm.	21.5 mm.
„ „ pronotum	6 „	6 „
„ „ tegmina	40 „	40.5 „
Width „ „	8 „	8 „
Length of hind femora	23 „	23.5 „
„ „ ovipositor	——	9 „

This new species comes in Brunner's key close to *modesta;* it may be distinguished from it and also from *fissa* by the brown colour, and by the shape of subgenital plate (in both sexes). The latter reminds (in the ♂) somewhat to *fissa* but is broader and not so sharply incised. According its size *fusca* is intermediate between the two others, nearer to *modesta* than to *fissa*.

Elbenia bispinosa n. sp.

♀. Pale green. Antennae unicolorous. Pronotum practically as in the two preceding species. Tegmina parallel-sided, rounded at apex, not darker in the anal field; radial vein with two branches; the second simple, directed towards the apex, the first arising distinctly before the middle, 2- or 3-furcate. Fore coxae armed with a long, somewhat curved, sharply pointed spine. Spines of femora very small, practically not darker than the body.

Anal segment of ♀ truncate behind, but produced into two long, slender, sharply pointed spines close to middle. Ovipositor nearly twice as long as pronotum, curved upwards, pointed at apex, in the apical half with the surface and the lower margin somewhat granulate: upper margin smooth throughout its whole length. Subgenital plate (♀) triangulate, blunt at apex.

Length of body 25 mm., of pronotum 5.5 mm., of tegmina 39 mm., width of tegmina 7.8 mm., length of hind femora 21 mm., of ovipositor 10.4 mm.

This species is allied to the Philippine *E. manillensis* Pictet, but may be distinguished from all hitherto known species by the remarkable shape of anal segment in ♀.

Elbenia loliifolia (De Haan).

1842. DE HAAN, Temminck, Verh., Orth., p. 194 (*Locusta Phaneroptera*).
1869. WALKER, Cat. Derm. Salt. Brit. Mus., II, p. 348 (*Phaneroptera*).
1878. BRUNNER v. W., Mon. Phan., p. 164, 165 (*Casigneta ?*).
1906. KIRBY, Syn. Cat. Orth., II, p. 424 (*Casigneta*).
1920. KARNY, Zool. Mededeel., V, 4, p. 189, 209 (*Habra*).

I have placed this species in *Habra,* with which it agrees better by venation of tegmina than with *Elbenia* or *Phaula.* I had then a ♀ only for my study, and from *Habra* the ♂ only was described. In the Buitenzorg Museum, however, *Habra* is represented in both sexes, and I see from these, that this genus does not belong to the *Phaula*-group. Now I must therefore place *loliifolia* in *Elbenia,* although its venation does not agree perfectly with this genus, but represents an intermediate type between *Elbenia* and *Phaula.*

I place in this species one ♂ of the Raffles Museum, from Penang (1.500′-2,428′; May 1916); but I do so with some doubt, because I have here no ♀ for comparison, and the ♂ is hitherto not yet described. I will describe here therefore the specimen before me; it cannot certainly be decided, whether it is really *loliifolia*, or a new species, until Javanese ♂ ♂ of *loliifolia* are discovered.

First radial branch of tegmina arising from the middle of radial vein, bifurcate in its middle, both branches running obliquely to the hind margin, the distal one once more bifurcate before the end. Further two simple radial branches obliquely directed to the hind margin. All transverse veins very prominent. Anal segment (♂) broadly rounded; cerci simple curved inwards. Subgenital plate (♂) deeply split into two cylindrical lobes, distinctly overreaching the cerci, and strongly curved upwards before their end. These lobes longer than the basal undivided part of subgenital plate.

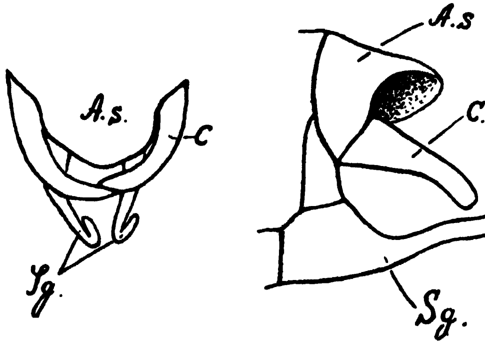


Fig. 13. End of ♂ abdomen of *Elbenia loliifolia* (?), dorsal and lateral view. A.s. Anal segment. C. Cerci. Sg. Subgenital plate.—Enlarged.

Length of body 17.5 mm., of pronotum 4 mm., of tegmina 29 mm., width of tegmina 5 mm., length of subgenital plate 3 mm.

The species was hitherto known from Java only.

Genus **Phaula** Brunner v. W.

1878. BRUNNER v. W., Mon. Phan., p. 167.
1891. BRUNNER v. W., Verh. zool.-bot. Ges. Wien, XLI, p. 79.
1902, 03. JACOBSON & BIANCHI, Orth. Pseudoneur. Russ., p. 324, 336, 375.
1906. KIRBY, Syn. Cat. Orth., II, p. 425.

Phaula gigantea n. sp.

♀. Yellowish green, tegmina and apex of wings green, somewhat transparent. Eyes black. Pronotum smooth; hind margin of disc rounded; lateral lobes much higher than long. Venation of tegmina as in *Phaula* group 1.1 (Brunner), or in *Holochlora* but the mediastinal vein indistinct, not sharply prominent; radial vein with 4 oblique branches running to the hind margin, the first

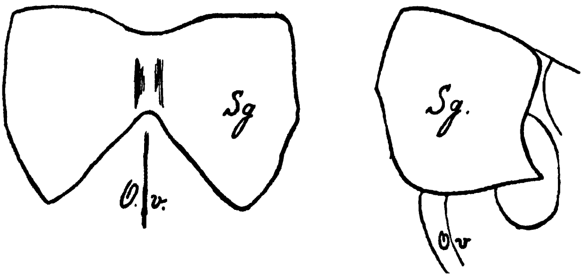


Fig. 14. Subgenital plate (Sg.) and base of ovipositor (Ov.) of *Phaula gigantea* ♀. Ventral and lateral view.—Enlarged.

of which bifurcate near the base. Tegmina nearly twice as wide as pronotum long. All legs long and slender. Fore coxae armed with a sharp spine. All femora with some short spines beneath. Fore and middle tibiae distinctly sulcate above. Ovipositor short, blunt at apex, finely serrate near the end of both margins. Subgenital plate (♀) large, deeply incised in the middle; its lobes laterally produced into a sharp angle.

Length of body 25 mm., of pronotum 7.5 mm., of tegmina 52 mm., width of tegmina 13.5 mm., length of hind femora 30 mm., of ovipositor 7.3 mm.

General appearance quite as in the *Holochloras*, but without a prominent mediastinal vein of tegmina, and without a sharp fold at the base of ovipositor. By these characters my new species should come in *Liotrachela,* but differs from this genus by the venation of tegmina, especially the arrangement of the branches of radial vein. It must therefore come in *Phaula* with which it agrees not only by this character, but also by the transparent constitution of tegmina. But it differs from all hitherto known *Phaulas* by its larger size and the blunt relatively short ovipositor. Perhaps it should form a new genus, which would be in the same relation to *Liotrachela* as *Phaula* is to *Elbenia.*

1 ♀ from Kedah Peak (Dec. 1915).

Genus **Psyra** Stål.

1876. Stål, Bihang Svenska Akad., IV (5), p. 55.
1878. Brunner v. W., Mon. Phan., p. 169.
1891. Brunner v. W., Verh. zool.-bot. Ges. Wien, XLI, p. 87.
1906. Kirby, Syn. Cat Orth., II, p. 427.

Psyra obliterata n. sp.

♂. Yellow (probably green when alive). Disc of pronotum dark in its last third. Tegmina green, with a large black spot in the anal field. Abdomen purplish red on the dorsal surface.

Pronotum somewhat constricted before the middle, with two deep transverse sulci, strongly rounded behind, lateral lobes higher than long. Tegmina long and narrow, without a glaring stripe along the mediastinal vein; this straight, but not very prominent, nearly somewhat abortive. Radial vein with 4 simple, oblique branches running into the hind margin; the first of them arising before the middle. Fore coxae armed with a sharply pointed spine. Fore and middle femora with 3-5 spines on the fore margin, unarmed behind. Hind femora in the apical half on both margins with about 6 spines dark at extreme apex.

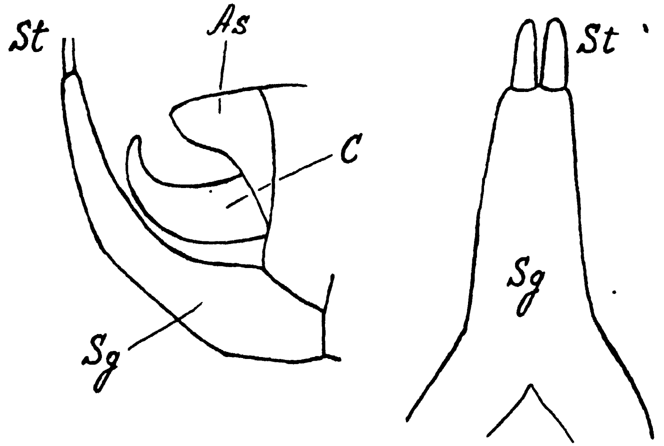


Fig. 15. End of ♂ abdomen of *Psyra obliterata*, lateral and ventral view, enlarged. A.s. Anal segment. C. Cercus. Sg. Subgenital plate. St. Styles.

Anal segment of ♂ produced behind in a short, broadly rounded lobe. Cerci thick, curved inwards, blackish at the end, sharply pointed at extreme apex. Subgenital plate (♂) long and slender, truncate at apex; styles not very long, somewhat depress.

Length of body 26 mm., of pronotum 5.5 mm., of tegmina 47 mm., width of tegmina 8 mm., length of hind femora 23 mm.

This new species belongs to the *melanonota*-group, but differs from this and the other allied species at once by the shape of anal segment and subgenital plate (♂).

1 ♂ from Bukit Kutu, Selangor (April 1915; 3,000′-3.460′).

Psyra melanonota Stål.

1842. DE HAAN, Temminck, Verh., Orth., p. 194 (*Locusta Phaneroptera ensis* ♀ nec ♂).
1876. STÅL, Bihang Svenska Akad., IV (5), p. 56.
1878. BRUNNER v. W., Mon. Phan., p. 172.
1891. KARSCH, Berl. Ent. Zeitchr., XXXVI, 1, p. 210.
1891. BRUNNER v. W., Verh. zool.-bot. Ges. Wien, XLI, p. 87.
1904. KRAUSZE, Ins. Börse, XXI.
1906. KIRBY, Syn. Cat. Orth., II, p. 427.
1920. KARNY, Zool. Mededeel., V, 4, p. 192, 210.

3 ♂♂ from Pulo Pisang (30. March—1. April 1921) and from Pulo Jarak (8. April 1921).

Distribution: Malacca, Java, Borneo, Celebes, Moluccas (Amboina), and New Britain.

Psyra punctulata n. sp.

♀. Brownish yellow; antennae dark, with distant pale rings. Eyes very prominent, dark. Disc of pronotum rounded posteriorly, with a fine black line close before the hind margin; lateral lobes as long as high. Tegmina very long, with straight, parallel fore and hind margins, more than one and a half times as wide as the length of pronotum. brownish yellow, somewhat nitid; the cells between the transverse reticulation in the distal half along the costa, and along the posterior ulnar vein (and the hind margin) throughout the whole length blackish; also the cells of the whole anal field filled with black, with a large black spot before the end of this field. Radial vein with three oblique branches towards the hind margin, the first of which arising behind the middle, bifurcate already near its base. Fore coxae with a long, sharply pointed spine. All femora with some minute spines beneath, all knees blackish at extreme apex. Fore tibiae with a few black spots at the margin of tympanum. Lobes of third tarsal joint on all legs blackish.

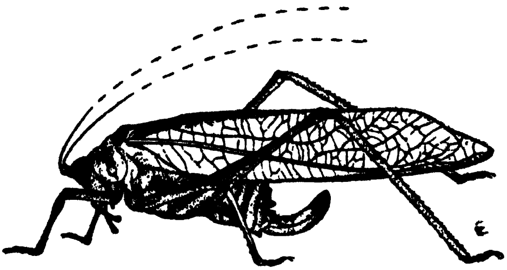


Fig. 16. *Psyra punctulata* ♀. Natural size. Del. Soehanam.

Anal segment with a very deep, triangular impression from its hind margin to the hind margin of the preceding segment. Ovipositor strongly compressed, sickle-shaped, slender, nearly twice as long as pronotum, acute at apex; in the distal part strongly granulated on its whole surface and serrate on both margins; basal half smooth; at extreme base a sharp edge protruding similarly as in the *Holochloras.* Subgenital plate bluntly triangular, rounded, wider than long, with a deep, triangular impression along the middle.

♂ unknown.

Length of body 26 mm., of pronotum 5.8 mm., of tegmina 46.8 mm.. width of tegmina 9 mm., length of hind femora 24.8 mm., of ovipositor 10.5 mm.

It is a very difficult matter to describe a new *Psyra* from the female only; but there is no doubt that this specimen before me represents a new species belonging to the group of *marginata* and *longelaminata,* both recorded from Borneo. From the former, *punctulata* may be distinguished especially by the first radial branch arising behind the middle, from *longelaminata* by the narrower tegmina.

1 ♀ from Gunong Tamabo, Baram River, Sarawak (13.11. 1920; J. C. Moulton).

Psyra peraka n. sp.

♀. Body and legs yellowish (certainly green when alive), tegmina green. Antennae unicolorous, brownish yellow. Eyes very prominent, dark. Disc of pronotum rounded behind, not bordered with black; lateral lobes a little longer than high. Tegmina long, one and a half times as wide as the length of pronotum, with a more rounded hind margin than in the preceding species, green, the fore and hind margin and the mediastinal vein brownish yellow. First radial branch arising close before the middle, then bifurcated and both branches communicating with the anterior ulnar vein on the left tegmen, freely running into the hind margin on the right tegmen: further 3 (left) or 2 (right) simple oblique radial branches to the hind margin. Fore coxae armed as in *punctulata;* legs unicolorous.

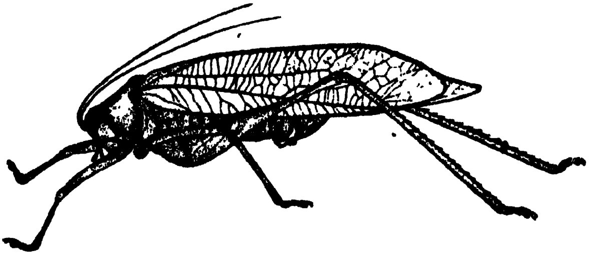


Fig. 17. *Psyra peraka* ♀. Natural size. Del. Soehanam.

Anal segment (♀) equally truncate behind, without an impression; supra-anal plate ovate. Ovipositor as in the preceding species. Subgenital plate larger than in *punctulata*, heart-shaped, in basal part with strongly prominent lateral borders almost forming downwards protruding lobes; broadly emarginated at apex, with bluntly triangular, rounded lobes.

♂ unknown.

Length of body 26 mm., of pronotum 6 mm., of tegmina 42 mm., width of tegmina 9.4 mm., length of hind femora 25 mm., of ovipositor 10.3 mm.

Differing from the preceding species by the colour of antennae, tegmina and legs, by the more rounded hind margin of tegmina, and by the form of subgenital plate of ♀. Without doubt very near to the Philippine *longestylata;* I cannot give the sexual character separating these two species, because I have a female only of *peraka* whilst from *longestylata* the male only is known.

2 ♀ ♀ from Gunong Kledang, Perak (2,646'; March 1898 and Nov. 1916). To the same species belongs perhaps further a somewhat damaged specimen from Singapore.

Genus **Dicranopsyra** Dohrn

1892. DOHRN, Stett. Ent. Zeit., XLIII, p. 71
1906. KIRBY, Syn. Cat. Orth., II, p. 427

Dicranopsyra leopardina n. sp.

♂. Yellowish (probably green when alive). Eyes prominent, brown. Antennae unicolorous, yellowish. Disc of pronotum smooth, with a small blackish spot in its middle, strongly produced behind, with rounded hind margin; lateral lobes rounded, higher than long. Tegmina parallel-sided, dark green, with bright yellow longitudinal and transverse veins; close behind the radial vein a longitudinal row of about 20 black spots; mediastinal vein sharp, reddish brown, close before it a dark brown stripe. Radial vein with three oblique branches running to the hind margin, the first of which arising in the middle, bifurcate near base, more or less communicating with the anterior ulnar vein. Apex of hind wings also green with yellow veins; their remaining surface pale green.

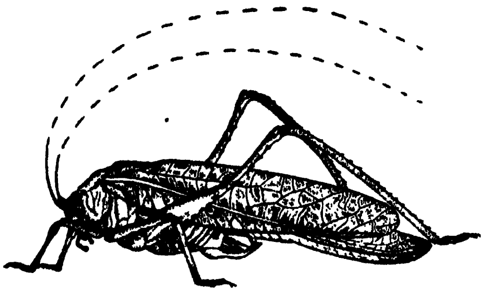


Fig. 18. *Dicranopsyra leopardina* ♂. Natural size. Del. Soehanam.

Mesosternal lobes ovate, those of metasternum semicircularly rounded. Fore coxae armed with a sharply pointed spine. Fore and middle femora beneath on the fore margin with 4 dark brown spines, unarmed behind. Middle femora one and a half times as long as those of the fore pair, somewhat curved. Knees concolorous. Fore tympanum rimate, the hind one broadly open. All tibiae distinctly sulcate above, those of middle legs with a few dark spines on hind margin. Both lower margins of all tibiae set with spines along the whole length. All spines of hind legs (femora and tibiae!) very dark black, with a black spot apposed to their base.

Anal segment (♂) deeply split in two finger-like lobes, similar to *Holochlora ensis* ♂, touching the subgenital plate close before the end. Cerci slender, nearly straight, curved inwards at extreme apex, without spines. Subanal plate compress, curved upwards, blunt at apex, about five times as long as high. Subgenital plate long and slender, in its apical half divided in two lobes bearing at their ends the short, cylindrical, articulately inserted styles.

♀ unknown.

Length of body 26 mm., of pronotum 5 mm., of tegmina 41 mm., width of tegmina 8.5 mm., length of hind femora 23 mm.

By the very remarkable colour (especially of tegmina), this new species may be distinguished at once from all hitherto known species of *Psyra, Dicranopsyra* and *Holochlora.* In general appearance it reminds to *Psyra*, but comes by the aberrant shape of the ♂ end of abdomen to *Dicranopsyra*; but the subgenital plate resembles not *Isopsera* (as in *multicolor*), but *Holochlora ensis.* From the latter genus *D. leopardina* differs by its more slender appearance.

2 ♂ ♂ from Kedah Peak (Dec. 1915).

Genus **Holochlora** Stål.

1873. STÅL, Oefv. Vet.-Akad. Förh., XXX (4), p. 42.
1874. STÅL, Rec. Orth., II, p. 17.
1878. BRUNNER v. W., Mon. Phan., p. 174.
1891. BRUNNER v. W., Verh. zool.-bot. Ges. Wien, XLI, p. 89.
1906. KIRBY, Syn. Cat. Orth., II, p. 430.
1908. MATSUMURA & SHIRAKI, Journ. Coll. Agric., Sapporo, III, 1, p. 15.
1921. KARNY, Treubia, I, 4, p. 297.

Holochlora signata Brunner v. W.

1891. BRUNNER v. W., Verh. zool.-bot. Ges. Wien, XLI, p. 92.
1906. KIRBY, Syn. Cat. Orth., II, p. 431.

Represented in the collection of Raffles Museum from the following localities: Fort Canning, Singapore (12 Oct. 1913; Xavier; 1 ♂), Bukit Kutu, Selangor (April 1915; 3,457′; 1 ♂), Singapore (1 ♀), and Govt. Hill, Singapore (May 1917; Xavier coll.; 1 ♀).

Antennae uniformly pale, but in the ♂ from Bukit Kutu distinctly pale and dark annulated; it has perhaps also the anal segment a little stronger produced behind than in the typical *signata*, but I cannot find other characters to separate it specifically from *signata.*

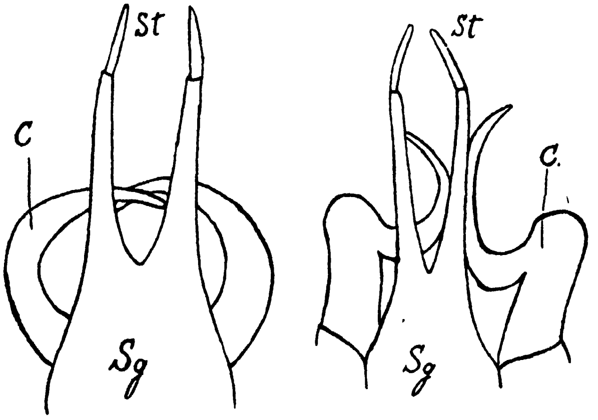


Fig. 19. End of ♂ abdomen of *Holochlora signata* (left) and *H. fracticerca* (right), ventral view, enlarged. C. Cerci. Sg. Subgenital plate. St. Styles.

H signata was hitherto known from Singapore and Borneo only, but it is also not uncommon in the vicinity of Buitenzorg, Western Java (specimens in the collection of Buitenzorg Museum).

Holochlora fracticerca n. sp.

♂, ♀. General appearance quite as in *signata* the black dot at base of radial vein, typical for the latter also present in *fracticerca.* Differing only by the characters of apex of abdomen:

♂. Anal segment produced on each side into a rounded lobe, which is excavate in its middle, with a well defined black spot in this concavity; between the lobes, the anal segment is excavated and produced downwards into a bluntly triangular process. Cerci swollen at base, then abruptly acutangularly curved inwards, further slender and a second time strongly curved, in the apical half directed outwards, not crossing each other. Subgenital plate practically as in *signata.*

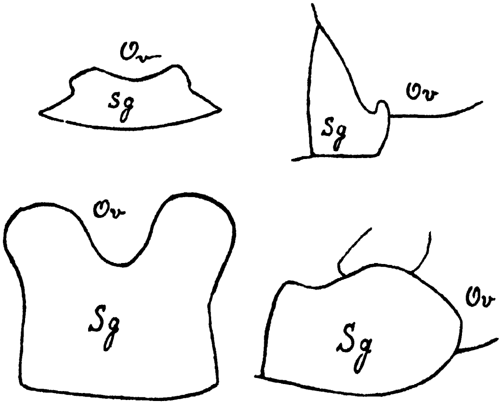


Fig. 20. Subgenital plate (Sg.) and base of ovipositor (Ov.) of *Holochlora fracticerca* ♀ (above) and *H. signata* (beneath), ventral and lateral view, enlarged.

♀. Ovipositor as in *signata.* Subgenital plate small, transversely trapezoidal, in the middle of hind margin slightly emarginate, on each side produced into a small, rounded angle, directed upwards.

	♂		♀	
Length of body	22 —26	mm.	22	mm.
,, ,, pronotum	5.7— 6	,,	6	,,
,, ,, tegmina	39.5—40.3	,,	39.5	,,
Width ,, ,, ...	8.5— 8.7	,,	8.7	,,
Length of hind femora	22.5	,,	23.5	,,
,, ,, ovipositor	——	,,	5.5	,,

2 ♂♂ and 1 ♀ from Gunong Kledang, Perak (2,646′; Nov. 1916).

Holochlora ensis (De Haan).

1842. De Haan, Temminck, Verh., Orth., p. 194 (*Locusta Phaneroptera ensis* ♂, nec ♀).
1869. Walker, Cat. Derm. Salt. Brit. Mus., II, p. 341 (*Phaneroptera*).
1878. Brunner v. W., Mon. Phan., p. 180 (*javanica*).
1891. Brunner v. W., Verh. zool.-bot. Ges. Wien, XLI, p. 91 (*javanica*).
1891. Karsch, Berl. Ent. Zeitschr., XXXVI, 1, p. 211 (*javanica*).
1902. Krauss, Semon, Zool. Forsch. Austral., V, p. 748 (*javanica*).
1906. Kirby, Syn. Cat. Orth., II, p. 431 (*javanica*).
1909. Rehn, Bull. Amer. Mus. Nat. Hist., N. Y., XXVI, 13, p. 193 (*javanica*).
1915. Bruner, Univ. Stud. Lincoln, XV, 2, p. 277 (*javanica*).
1920. Karny, Zool. Mededeel., V, 4, p. 192, 210 (*Psyra*).
1921. Karny, Phil. Journ. Sci., XVIII, 5, p. 615 (*javanica*).

1 ♂ from Pahang (July 1891), and 1 ♀ without locality label.

Distribution: Further India, Malacca, Sumatra, Java, Borneo, Mindanao.

Genus **Phaneroptera** Serville.

1831. Serville, Ann. Sci. Nat., XXII, p. 158.
1835. Brullé, Hist. Nat. Ins., IX, p. 143.
1838. Burmeister, Handb. Ent., II, p. 688.
1839. Serville, Hist. Nat. Ins., Orth., p. 413.
1839. Rambur, Faun. Andal., II, p. 43.
1840. Blanchard, Hist. Nat. Ins., III, p. 24.
1840. Herrich-Schäffer, Nomencl. Ins., Orth., p. 13.
1846. Fischer de Waldheim, Orth. Ross., p. 139.
1853. Fischer Friburgensis, Orth. Eur., p. 236.
1853. Fieber, Lotos III, p. 173.
1854. Fieber. Syn. Eur. Orth., p. 49.
1867. Frivaldsky, Ertek. Termesz. Kör. I (12), p. 83, 106.
1874. Stål, Rec. Orth., II, p. 14.
1876. Bolivar, Ortopt. Españ., p. 175, 232.
1877. Bolivar, An. Soc. Españ., VI, p. 257, 314.
1878. Brunner v. W., Mon. Phan., p. 209.
1882. Brunner v. W., Prodr. Eur. Orth., p. 291.
1883. Finot, Orth. France, p. 89, 97.
1889. Finot, Faune France, Orth., p. 174, 181.
1891. Brunner v. W., Verh. zool.-bot. Ges. Wien, XLI, p. 107.
1900. Bolivar, Ann Sci. Nat. Porto, VI, p. 8.
1900. Tümpel, Geradfl. Mitteleur., p. 221, 223, 254.
1902, 03. Jacobson & Bianchi, Orth. Pseudoneur. Russ., p. 324, 336, 376.
1906. Kirby, Syn. Cat. Orth., II, p. 434.
1908. Matsumura & Shiraki, Journ. Coll. Agric., Sapporo, III, 1, p. 19.

Phaneroptera brevis Serville.

1838. Bumeister, Handb. Ent., II, p. 690 (*gracilis*, nec Germar).
1839. Serville, Hist. Nat. Ins., Orth., p. 418.
1842. De Haan, Temminck, Verh., Orth., p. 193.
1860. Stål, Eugenies Resa, Orth., II, p. 29 (*subnotata*).
1869. Walker, Cat. Derm. Salt. Brit. Mus., II, p. 347 (*brevis, gracilis*), 348 (*subnotata*).
1871. Walker, Cat. Derm. Salt. Brit. Mus., Suppl., p. 38 (*subnotata*).
1874. Stål, Rec. Orth., II, p. 29 (*subnotata*).
1878. Brunner v. W., Mon. Phan., p. 215 (*subnotata*).
1903. ?Krauss, Semon, Zool. Forsch. Austral., V, p. 747 (*sp*).
1906. Kirby, Syn. Cat. Orth., II. p. 436 (*gracilis*).
1906. v. Deventer, Dierl. Vijanden v.h. Suikerriet, p. 281 (2e druk 1912) (*spec.?*).

1909. REHN, Bull. Amer. Mus. Nat. Hist., N.Y., XXVI, 13, p. 195 (*subnotata*).
1915. BRUNER, Univ. Stud. Lincoln, XV, 2, p. 278 (*gracilis*).
1920. KARNY, Zool. Mededeel., V, 4, p. 195, 210.
1921. KARNY, Phil. Journ. Sci., XVIII, 5, p. 616.
1921. KARNY, Trop. Natuur, X, 5, p. 69 (Fig. 7).
1922. KARNY, Natur. (Leipzig) XIII, 13, p. 202.

2 ♂♂ from Singapore: Kim Kiat Road (23 May 1911); Impounding Reservoir (1 Feb. 1913).

Distribution: Singapore, Java, Borneo, Philippine Islands, Timor, Tondano, N. Australia.

Genus **Isopsera** Brunner v. W.

1878. BRUNNER v. W., Mon. Phan., p. 218.
1891. BRUNNER v. W., Verh. zool.-bot. Ges. Wien, XLI, p. 109.
1906. KIRBY, Syn. Cat. Orth., II, p. 438.

Isopsera scalaris Rehn.

1909. REHN, Bull. Amer. Mus. Nat. Hist., N. Y., XXVI, 13, p. 195.

1 ♀ from Bukit Kutu, Selangor (April 1915; 3,457′).

Measurements: Length of body 17.5 mm. (somewhat contracted), of pronotum 3.8 mm., of tegmina 27 mm., width of tegmina 6 mm., length of hind femora 16 mm., of ovipositor 5 mm.

Hitherto known from Sumatra only (1 ♀ described by Rehn). The ♂ (not yet described) is represented in the collection of Buitenzorg Museum from Sumatra and will be published in an other paper together with the other *Phaneropterinae* of Buitenzorg Museum. Then will be described also a very similar species from Western Java which has a longer and more pointed subgenital plate in the ♀. In *scalaris* it is a little shorter and more blunt, the V-shaped emargination deeper, nearly rectangular.

Genus **Sympaestria** Brunner v. W.

1878. BRUNNER v. W., Mon. Phan., p. 185.
1891. BRUNNER v. W., Verh. zool.-bot. Ges. Wien, XLI, p. 13.
1892. DOHRN, Stett. Ent. Zeit., LIII, p. 72.
1906. KIRBY, Syn. Cat. Orth., II, p. 432.
1922. KARNY, Natür (Leipzig) XIII, 13, p. 202.

Sympaestria acutelobata Brunner v. W.

1878. BRUNNER v. W., Mon. Phan., p. 185.
1892. DOHRN, Stett. Ent. Zeit., LIII, p. 73.
1906. KIRBY, Syn. Cat. Orth., II, p. 432.
1909. REHN, Bull. Amer. Mus. Nat. Hist., N. Y., XXVI, 13, p. 195.

3 ♂♂ from Bukit Kutu, Selangor (April 1915; 3000′-3460′); 1 ♂ from Baram, Sarawak (13 Sept. 1920; coll. J. C. Moulton).

Fore coxae without spine (in both sexes).

♂ (hitherto unknown) of the same size as the ♀. Anal segment transversely truncate, with a short, sharp tooth in the middle of hind margin. Supra-anal plate acute, triangular, distinctly longer than wide, with sinuate lateral margins. Cerci long, cylindrical, strongly incurved, crossing each other. Subgenital plate long and slender, triangularly splitted at apex, with the styles cylindrical, as long as or longer than the lobes of subgenital plate.

Hitherto known from Borneo, Java, Sumatra and Singapore.

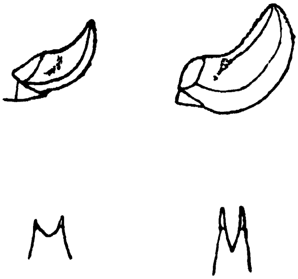


Fig. 21. *Sympaestria brevicauda* (left), and *S. acutelobata* (right). Lateral view of ♀ ovipositor (above), and ventral view of ♂ subgenital plate (beneath).—3 times enlarged.

Sympaestria brevicauda n. sp.

♂, ♀. Very similar to the preceding species, and of the same colour. Tegmina with the hind margin more rounded, and the radial branch shaped as in *acutelobata.* The green apex of wings overreaching the tegmina shorter and less pointed than in Brunner's species. Fore coxae not spined in the ♂, with a short, sharply pointed spine in ♀. Lobes of metasternum somewhat obliquely truncate behind, blunter than in *acutelobata.* ♂ genitalia similar as in that species, but the hind margin of anal segment in the middle with only a wide, very short and blunt edge. Subgenital plate (♂) broader, roundly emarginate, with short, conical styles. Ovi-

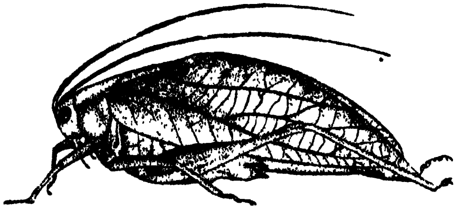


Fig. 22. *Sympaestria brevicauda* ♂, natural size. Del. Sochanam.

positor (♀) distinctly shorter and more pointed than in *acutelobata;* its superior margin smooth, the inferior margin with only a few denticles near the apex. Subgenital plate of ♀ very similar to that of the former species, triangular, longitudinally sulcate, but a little more blunt at apex than in *acutelobata.*

	♂	♀
Length of body	25—26 mm.	25.5 mm.
„ „ pronotum ..	7 „	7 „
„ „ tegmina ..	40 „	38 „
Width „ „ ..	14 „	14.2 „
Length of hind femora ..	19.5—20.5 „	21 „
„ „ ovipositor ..	——	4 ..

1 ♂ from Penang (1,500′-2,428′; May 1917), and 1 ♂ and 1 ♀ without locality label.

Sympaestria genualis n. sp.

♂. Very similar to *acutelobata,* but distinguished at once from both preceding species by the dark knees of all femora (especially sharply black on the hind femora), whilst these are concolorous both in *acutelobata* and *brevicauda.* Tegmina a little less nitid than in the preceding species, of the same shape and venation as in *acutelobata.* Fore coxae not spined. Lobes of metasternum more rounded, similar as in *brevicauda.* Anal segment nearly as in this species, incision of subgenital plate acutely triangular; styles as in *acutelobata.*

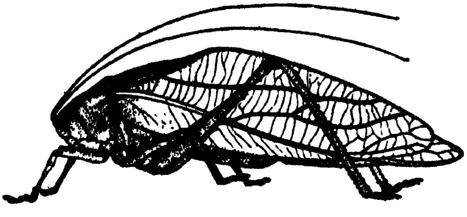


Fig. 23. *Sympaestria genualis* ♂, natural size. Del. Soehanam.

♂. Length of body 31 mm., of pronotum 6.5 mm., of tegmina 45 mm., width of tegmina 13.3 mm., length of hind femora 20 mm.

1 ♂ from Bukit Kutu, Selangor (April 1915; 3,000′-3,460′), together with *acutelobata.*— ♀ unknown.

Sympaestria triramosa n. sp.

♀. Very similar to the preceding species, but the hind knees only sharply black, fore and middle knees unicolorous with their femora. Tegmina more nitid than in *genualis,* similar as in *acutelobata,* with a sharp black line along the ulnaris posterior. It may be distinguished at once from all the *Sympaestrias* enumerated above by the very characteristic shape of radial branch; this going off from radial vein distinctly before the middle, furcated in its middle in two branches running against the hind margin: before this furcation goes an oblique branch to the ulnaris anterior; therefore the radial branch is triramose, the first branch running to the ulnaris anterior, the following two to the hind margin.—Fore coxae with a short, sharply pointed spine. Ovipositor and subgenital plate of ♀ nearly as in *brevicauda*, but the upper margin of the former also very finely serrate. ♂ unknown.

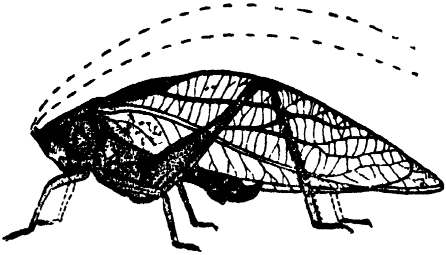


Fig. 24. *Sympaestria triramosa* ♀, natural size. Del. Soehanam.

♀. Length of body 25.5 mm., of pronotum 7 mm., of tegmina 44 mm., width of tegmina 14.5 mm., length of hind femora 20 mm., of ovipositor 4 mm.

1 ♀ from Gunong Tamabo, Baram River, Sarawak (15 Nov. 1920; coll. J. C. Moulton).

Genus **Stibaroptera** Bolivar.

1878. BRUNNER v. W., Mon. Phan., p. 354 (*Stibara*, nec HOPE).
1891. BRUNNER v. W., Verh. zool.-bot. Ges. Wien, XLI, p. 23 (*Stibara*, nec HOPE).
1892. DOHRN, Stett. Ent. Zeit., LIII, p. 72 (*Sympaestria* p. p.).
1906. KIRBY, Syn. Cat. Orth., II, p. 432 (*Sympaestria* p. p.).
1906. BOLIVAR, Bol. Soc. Españ., VI, p. 393.
1910. KIRBY, Syn. Cat. Orth., III, p. 574 (*Sympaestria* p. p.).

Stibaroptera major n. sp.

♂, ♀. Green, nitid; lateral margins of pronotal disc and the principal veins of tegmina yellowish; hind margin of pronotum not darker bordered; along the (yellow) ulnaris posterior a black line in both sexes. Tegmina not hatched with black. Knees concolorous.

Lateral lobes of pronotum distinctly higher than long. Fore coxae not spined. Venation of tegmina as in *nitidifolia* (see Karny, Zool. Mededeel., V, 4, p. 200; 1920), with both branches of radial sector running into the hind margin. Anal segment of ♂ transversely truncate, emarginate in the middle of hind margin;

cerci of ♂ slender, cylindrical, blunt at apex, crossing each other. Subgenital plate of ♂ acutely triangular, with slightly sinuate sides, strongly incised at apex with short, nearly rudimentary styles. Ovipositor and subgenital plate of ♀ shaped as in *Sympaestria acutelobata.*

	♂	♀
Length of body	37 mm.	35 mm.
„ „ pronotum	9.5 „	10 „
„ „ tegmina	57 „	56 „
Width „ „	19 „	21 „
Length of hind femora	20 „	22 „
„ „ ovipositor	— „	7.5 „

Differing from both *St. nitidifolia* and *cornea* by the tegmina not hatched with blackish, and by the somewhat longer ovipositor. From the *Sympaestrias* quite different by both branches of radial sector running into the hind margin.

The species described by A. H. Krausze (Ins. Börse, XX, 1903, p. 308-309) from Tonkin as "*Ischyra martha*" belongs perhaps also to *Stibaroptera,* but the original description is very laconical and quite insufficient, so that I cannot decide it with certainty. But at all events, *martha,* however, may be distinguished from my new species by the shorter ovipositor with the margins smooth, not serrate.

Stibaroptera longipes (Dohrn), finally, is more slender, and has longer legs than the species described hereabove.

1 ♂ from Bukit Lantai, Sungei Ujong (V. Knight coll.; July 1910), and 1 ♀ from Gunong Kledang, Perak (2,646'; Nov. 1916).

Genus **Baryprostha** Karsch.

1891. KARSCH, Berl. Ent. Zeitschr., XXXVI, p. 211.
1906. KIRBY, Syn. Cat. Orth., II, p. 416.
1906. DOHRN, Stett. Ent. Zeit., 67, II, p. 354.

Baryprostha bellua Karsch.

1891. KARSH, Berl. Ent. Zeitschr., XXXVI, p. 212.
1906. KIRBY, Syn. Cat. Orth., II, p. 416.
1906. DOHRN, Stett. Ent. Zeit., 67, II, p. 354.

1 ♀ from Gunong Angsi, Negri Sembilan (2,000'-2,700'; April 1918).

This excellent species was hitherto known from Sumatra only. In the collection of Buitenzorg Museum there are also specimens from Western Java.

Genus **Xantia** Brunner v. W.

1878. BRUNNER v. W., Mon. Phan., p. 370.
1891. BRUNNER v. W., Verh. zool.-bot. Ges. Wien, XLI, p. 19.
1906. KIRBY, Syn. Cat. Orth., II, p. 459.

Xantia borneensis Brunner v. W.

1878. Brunner v. W., Mon. Phan., p. 371.
1906. Kirby, Syn. Cat. Orth., II, p. 459.

There are 4 green ♂ ♂ in the collection of Raffles Museum, from Bukit Kutu, Selangor (April 1915).

Hitherto known from "India" and Borneo.

In the collection of Buitenzorg Museum also represented from Java.

Subfam. ***Mecopodinae.***

Genus **Mecopoda** Serville.

1831. Serville, Ann. Sci. Nat., XXII, p. 154.
1835. Brullé, Hist. Nat. Ins., IX, p. 140.
1838. Burmeister, Handb. Ent., II, p. 685.
1389. Serville, Hist. Nat. Ins., Orth., p. 532.
1840. Blanchard, Hist. Nat. Ins., III, p. 12.
1842. De Haan, Temminck, Verh., Orth., p. 187.
1869. Walker, Cat. Derm. Salt. Brit. Mus., II, p. 265 (*Lucera*).
1874. Stål, Rec. Orth., II, p. 22, 47.
1886. Karsch, Berl. Ent. Zeitschr., XXX, p. 108, 111.
1892. Redtenbacher, Verh. zool.-bot. Ges. Wien, XLII, p. 211.
1906. Kirby, Syn. Cat. Orth., II, p. 363.
1908. Matsumura & Shiraki, Journ. Coll. Agric., Sapporo, III, 1, p. 27.
1916. Caudell, Wytsman. Genera Insectorum, fasc. 171, p. 23.

Mecopoda elongata (Linnaeus).

1758. Linnaeus, Syst. Nat., ed. X, I, p. 429 (*Gryllus Tettigonia elongatus*).
1763. Johansson, Amoen. Acad., VI, p. 398 (*Gryllus javanus*).
1764. Linnaeus, Mus. Ludov. Ulric., p. 127 (*Gryllus Tettigonia elongatus*).
1775. Fabricius, Syst. Ent., p. 284 (*Locusta*).
1793. Fabricius, Ent. Syst., II, p. 37 (*Locusta*).
1813. Stoll, Spectres, Saut., p. 13 (*Gryllus Tettigonia ferruginea*).
1815. Thunbreg, Mem. Acad. Petersb., V, p. 279 (*Conocephalus elongatus*), 280 (*Locusta longipes*), 282 (*Locusta scalaris*).
1831. Serville, Ann. Sci. Nat., XXXI, p. 155 (*maculata*).
1835. Brullé, Hist. Nat. Ins., IX, p. 140 (*virens*).
1838. Burmeister, Handb. Ent., II, p. 685.
1839. Serville, Hist. Nat. Ins., Orth., p. 533 (*virens*).
1840. Blanchard, Hist. Nat. Ins., III, p. 22 (*ferruginea*), 23 (*virens*).
1842. De Haan, Temminck, Verh., Orth., p. 187 (*javana, macassariensis, niponensis*).
1862. Brunner v. W., Verh. zool.-bot. Ges. Wien, p. 93.
1869. Walker, Cat. Derm. Salt. Brit. Mus., II, p. 262 (*Decticus pallidus*), 263 (*Decticus tenebrosus*), 265 (*Lucera bicoloripes*).
1870. Walker, Cat. Derm. Salt. Brit. Mus., III, p. 457 (*elongata*), 458 (*rufa*, nec Stoll).
1871. Walker, Cat. Derm. Salt. Brit. Mus., Suppl., p. 48.
1891. Kirby, Trans. Ent. Soc. London, 3, p. 406.
1892. Redtenbacher, Verh. zool.-bot. Ges. Wien, XLII, p. 214.
1893. Brunner v. W., Ann. Mus. Genova, (2), XIII, p. 171.
1899. Krüger, Zuckerrohr u. s. Kultur, p. 319.
1903. Krauss, Semon, Zool. Forsch. Austral., V, p. 747, 748.
1905. Tani, Ins. World, 9, pl. 6.
1906. Kirby, Syn. Cat. Orth., II, p. 364.
1906. v. Deventer, Dierl. Vijanden v. h. Suikerriet, p. 281 (2 druk 1912).
1908. Griffini, Atti Soc. It. Sci. Nat., XLVI, p. 277.

1908. Matsumura and Shiraki, Journ. Coll. Agric., Sapporo, III, 1, p. 28.
1909. Rehn, Bull. Amer. Mus. Nat. Hist., N. Y., XXVI, 13, p. 196.
1909. Maxwell-Lefroy, Ind. Ins. Life, p. 91, 96.
1915. Bruner, Univ. Stud. Lincoln, XV, 2, p. 275.
1915. Karny, Suppl. Ent., p. 75.
1915. Koningsberger, Java Zoölogisch en Biologisch, p. 278.
1916. Caudell, Wytsman, Genera Insectorum, fasc. 171, p. 24.
1919. Dammerman, Landbouwdierkunde, p. 101.
1920. Caudell, Ent. News, XXXI, p. 55.
1920. Karny, Zool. Mededeel., V, 4, p. 172, 207.
1921. Karny, Phil. Journ. Sci., XVIII, 5, p. 612.
1921. Karny, Natur (Leipzig), XII, 23, p. 308.
1921. Karny, Trop. Natuur, X, 5, p. 67, 70.

This common and widely distributed species is represented i the material of Raffles Museum in different colour variations from the following localities:

(*a*) *Tegmina unicolorous green:*

♂ ♂ : Fort Canning, Singapore (May 1910, 1 ♂ ; 12-28 Jan. 1916; 4 ♂ ♂); Museum Ground, Singapore (17 June 1921; coll. P. M. de Fontaine; 1 ♂).

♀ ♀ : Long Seunyai, Baram, Sarawak (4 Oct. 1920; 1 ♀).

(*b*) *Tegmina green with large black blots:*

♀ ♀ : Pontianak (from S. Mayer Esq.; 13 March 1901; 1 ♀). Singapore (June 1902; 1 ♀ ; 9 Sept. 1915; 1 ♀); Fort Canning, Singapore (10 Dec. 1913; 1 ♀).

(*c*) *Tegmina unicolorous testaceous:*

♂ ♂ : Tak Sadang (Feb. 1901; 1 ♂); Fort Canning, Singapore (29 Jan. 1916; 1 ♂); ? (May 1898; 1 ♂).

(*d*) *Tegmina unicolorous fuscous*:

♂ ♂ : Baram River, Sarawak (1920; J. C. Moulton; 1 ♂). Singapore (presented by F. J. Benton Esq.; 17 June 1913; 1 ♂); Dindings (1897; 1 ♂); Cavanagh Rd., Singapore (Sept. 1913; 2 ♂ ♂); Gunong Angsi, Negri Sembilan (2,000′-2,790′; April 1908; 1 ♂); Singapore (21 May 1921; 1 ♂); Kota Tinggi, Johore (Aug. 1917; 1 ♂).

♀ ♀ : Baram River, Sarawak (1920; J. C. Moulton; 1 ♀); Lio Matu, Baram River, Sarawak (15 Oct. 1920; J. C. Moulton; 1 ♀). Long Seunyai, Baram, Sarawak (4 Oct. 1920; 1 ♀); Gurun Kedah (Nov.-Dec. 1915; 2 ♀ ♀); Singapore (1 ♀); Fort Canning, Singapore (28 Jan. 1916; 1 ♀).—1 ♀ without locality label.

(*e*) *Tegmina fuscous with large black blots:*

♀ ♀ : Lio Matu, Baram River, Sarawak (20-25 Oct. 1920; J. C. Moulton; 2 ♀ ♀); Gunong Tamabo, Sarawak (15 Nov. 1920; J. C. Moulton; 1 ♀). Tak Sadang (Feb. 1901; 1 ♀); Fort Canning, Singapore (28-31 Jan. 1916; 2 ♀ ♀); Bukit Panjang, Singapore (April 1910; 1 ♀); Singapore (3 ♀ ♀); Bukit Timah, Singapore (14 May 1911; 1 ♀); Singapore (1 Aug. 1913; 1 ♀); Botanic Gardens, Singapore (11 July 1911; 1 ♀); Singapore (1 March 1913; 1 ♀). 7 ♀ ♀ without locality label.

(*f*) *Tegmina fuscous with pale blots:*

♂ ♂ : Bukit Lantai, Sungai Ujong (V. Knight coll., July 1910; 1 ♂).

♀ ♀ : Singapore (1 ♀); Gunong Kledang, Perak (2,646′; Nov. 1916; 1 ♀).

This species is known as noxious (v. Deventer l.c., Dammerman l.c.).

Distribution of the species: Brit. India, Ceylon, Burma, Malacca, China, Corea, Japan, Formosa, Philippine Isl., Borneo, Java, Sumatra, Engano, Nias, Is. Batu, Is. Mentawei, Amboina, Halmahera, Aru, Key Isl., Australia.

Subfam. **Phyllophorinae.**

Genus **Phyllophora** Thunberg.

1815. THUNBERG, Mem. Acad. Petersb., V, p. 219, 286.
1874. STÅL, Rec. Orth., II, p. 21.
1898. BRUNNER v. W., Abh. Senckenb. Ges. XXIV, p. 260.
1899. KIRBY, Ann. Mag. Nat. Hist., (7), IV, p. 302.
1903. BOLIVAR, Ann. Mus. Nat. Hungar., 1, p. 173, 175.
1906. KIRBY, Syn. Cat. Orth., II, p. 369.
1912. CAUDELL, Wytsman, Genera Insectorum, fasc. 138, p. 8.

Phyllophora lanceolata Brunner v. W.

1842. DE HAAN, Temminck, Verh., Orth., p. 201 (*speciosa*, nec THUNBERG).
1898. BRUNNER v. W., Abh. Senckenb. Ges., XXIV, p. 263.
1899. KIRBY, Ann. Mag. Nat. Hist., (7), IV, p. 309.
1903. BOLIVAR, Ann. Mus. Nat. Hungar., 1, p. 177.
1903. KRAUSS, Semon, Zool. Forsch. Austral., V, p. 747.
1906. KIRBY, Syn. Cat. Orth., II, p. 368 (*Hyperhomala*).
1908. GRIFFINI, Zool. Anz., XXXII, 22, p. 647 (*Hyperhomala*).
1911. GRIFFINI, Riv. Mens. Sci. Nat. Natura, II, p. 14 (*Hyperhomala*).
1912. CAUDELL, Wytsman, Genera Insectorum, fasc. 138, p. 9 (*Hyperhomala*).
1920. KARNY, Zool. Mededeel., V, 4, p. 207 (*Hyperhomala*).

1 ♀ from Pontianak, W. Borneo (from S. Mayer Esq., 13 March 1901).

This specimen is the first Phyllophorine mentioned from Borneo. It is somewhat smaller than the specimens from other localities, but otherwise not different.

Further distribution: Halmahera, Amboina, Ceram, New Guinea, Torres Straits (Murray Isl.), Duke of York Isl., New Britain, New Ireland.

Subfam. **Pseudophyllinae.**

Genus **Pseudophyllus** Serville.

1831. Serville, Ann. Sci. Nat., XXII, p. 143.
1835. Brullé, Hist. Nat. Ins., IX, p. 136.
1839. Serville, Hist. Nat. Ins., Orth., p. 464.
1840. Blanchard, Hist. Nat. Ins., III, p. 21.
1842. De Haan, Temminck, Verh., Orth., p. 203.
1892. Pictet & Saussure, Icon. Saut. Vertes, p. 10 (*Chloracris*).
1895. Brunner v. W., Mon. Pseudophyll., p. 36.
1906. Kirby, Syn. Cat. Orth., II, p. 294.

Pseudophyllus prasinus (Pictet & Saussure).

1831. Serville, Ann. Sci. Nat. XXII, p. 143 (*neriifolius*, nec Stoll).
1839. Serville, Hist. Nat. Ins., Orth., p. 466 (*neriifolius*, nec Stoll).
1840. Blanchard, Hist. Nat. Ins., III, p. 21 (*neriifolius*, nec Stoll).
1842. De Haan, Temminck, Verh., Orth., p. 203 (*Locusta Pseudophyllus neriifolia*).
1862. Brunner v. W., Verh. zool.-bot. Ges. Wien, p. 93 (*neriifolius*, nec Stoll).
1892. Pictet & Saussure, Icon. Saut. Vertes, p. 22 (*Chloracris prasina*).
1895. Brunner v. W., Mon. Pseudophyll., p. 36 (*neriifolius*).
1902. Krauss, Semon, Zool. Forsch. Austral., V, p. 748 (*neriifolius*).
1906. Kirby, Syn. Cat. Orth., II, p. 294.
1919. Dammerman, Landbouwdierkunde, p. 100 (*Cleandrus Pseudophyllus neriifolius*).
1920. Karny, Zool. Mededeel., V, 4, p. 207.

Bukit Kutu, Selangor (April 1915; 3000′-3460′; 1 ♂, 1 ♀); Semangko Pass, Selangor—Pahang (2700′; March 1912; 1 ♂); Seremban (presented by R. Pears Esq., 15. April 1912; 1 ♀); and 1 ♀ without locality label.

This species was hitherto known only from Java and China, and is noted as noxious in the former island (Dammerman l.c.).

Genus **Cratioma** Bolivar.

1874. Stål, Rec. Orth., II, p. 51 (*Cratylus*, nec Meyer).
1892. Pictet & Saussure, Icon. Saut. Vertes, p. 6 (*Cratylus*, nec Meyer).
1895. Brunner v. W., Mon. Pseudophyll., p. 34 (*Cratylus*, nec Meyer).
1906. Kirby, Syn. Cat. Orth., II, p. 293 (*Cratylus*, nec Meyer).
1906. Bolivar, Bol. Soc. Españ., VI, p. 394.
1910. Kirby, Syn. Cat. Orth., III, p. 572.

Cratioma dilatatum n. sp.

♀. Pale yellow (living green?). Head short, with the vertex small and the eyes globular, prominent. Front nearly twice as wide as long. Antennae long, not darker annulated.

Pronotum granulated, with two transverse furrows, the posterior of which situated before the middle. Posterior margin angulated. Lateral lobes higher than long, with the lower margin obtuse angulate. Prosternum unarmed. Mesosternum broad, at the front margin emarginated, with the angles produced into a blunt, incurved tubercle. Metasternum broad; its lateral margins converging backwards.

Tegmina unicolours yellow, widest after the middle, with the hind margin nearly straight and the fore margin in the apical part strongly curved backwards. Subcostal and radial vein in the basal half separated, but running close together, in the distal half distinctly diverging. Radial sector arising before the middle, to the medial vein somewhat nearer than to the radial, ending before the tip of tegmina. Medial vein from the radial sector nearly twice as far remote as from hind margin, in the left tegmen connected near the base with the radial vein by an oblique cross-nervure, in the right one by the usual transverse veins only; ending before the apex of tegmina. Wings reaching beyond the tegmina, with greenish apex.

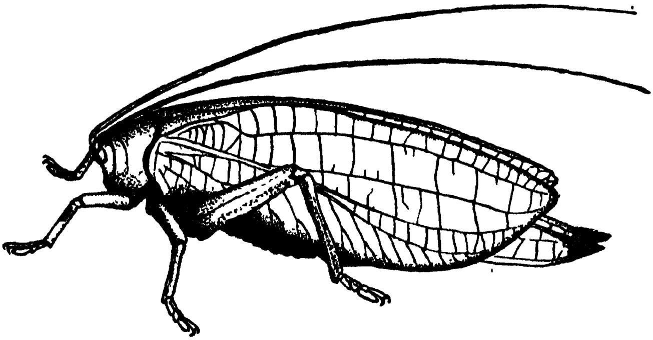


Fig. 25. *Craticoma dilatatum* ♀, natural size. Del. Soedirman.

Fore femora unarmed, the middle ones beneath with a few small tubercles before the knee. Hind legs short; femora beneath on both margins with nearly a dozen short spines; hind tibiae pilose, above and beneath on both margins with some small spines.

Ovipositor somewhat broad, with the lower margin curved, the upper straight, in the apical part black, with the tip acute. Subgenital plate of ♀ triangular, cut out at apex.

Length of body 35 mm., of pronotum 9·mm., of tegmina 54 mm., greatest width of tegmina 19 mm. (behind the middle), length of hind femora 16 mm., of ovipositor 15 mm.

1 ♀ from Johore.

This new species appoaches *Cr. fenestratum*, but differs by the unicolorous antennae, the form of tegmina, the shorter and slenderer hind legs, and the hind tibiae spined above.

Cratioma cruentatum n. sp.

♀. General colour brownish yellow (probably green when alive). Tegmina widest in or somewhat before the middle, more narrowed distally than in the preceding species, both margins converging towards the apex, the anterior one somewhat stronger curved than the hind margin. Subcosta and radius somewhat less remote from each other than in the preceding species. The areas before and behind radial sector larger than in *dilatatum;* medial vein stronger curved in its basal part. Before and behind the latter a large purple red, rounded spot, the anterior one divided by an oblique yellow cross vein in two. Along all longitudinal and transverse veins some small dots of the same colour. Medial vein from radial sector about three times as far remote as from posterior margin. Fore femora beneath along the outer margin with a few very small spines; the middle ones serrated along the whole length. Hind tibiae above on outer margin with 4 very small, hardly visible spines, along the inner margin with 6 more distinct ones. All other characters practically as in the preceding species.

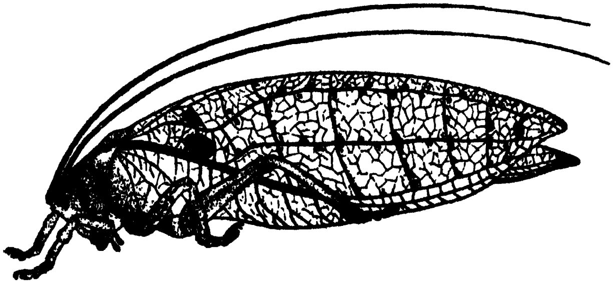


Fig. 26. *Cratioma cruentatum* ♀, natural size. Del. Soehanam.

Length of body 31 mm, of pronotum 10.5 mm, of tegmina 62 mm, greatest width of tegmina 20 mm (before the middle), length of fore femora 6.5 mm, of hind femora 16 mm, of ovipositor 16.5 mm.

1 ♀ from Gunong Angsi, Negri Sembilan (2000′-2790′; April 1918).

This species should come after Brunner's key to *Cleandrus,* on account of the distinct difference in size of the spines at outer and inner margin of hind tibiae above; but I have placed it rather to *Cratioma* on account of the contiguous cross veins of tegmina, a character very typical for *Cratioma,* whilst all the *Cleandrus*-species hitherto known have these veins alternating.

Without doubt, *Cr. cruentatum*, is very closely allied to *dilatatum*, but diverging not only by the purplish marked tegmina, a character which may be variable in some specimens, but also by the shape and venation of tegmina belonging in both species certainly to the same type, not quite conformable, however, in details, as may be seen from the descriptions given above.

Genus **Cleandrus** Stål.

1874. STÅL, Rec. Orth., II, p. 50.
1892. PICTET & SAUSSURE, Icon. Saut. Vertes, p. 6.
1895. BRUNNER V. W., Mon. Pseudophyll., p. 38.
1906. KIRBY, Syn. Cat. Orth., II, p. 294.

Cleandrus titan (White).

1846. WHITE, Ann. Nat. Hist., XVIII, p. 24 (*Pseudophyllus*).
1869. WALKER, Cat. Derm. Salt. Brit. Mus., II, p. 400 (*Pseudophyllus*).
1892. PICTET & SAUSSURE, Icon. Saut. Vertes, p. 12 (*neriifolius*, nec STOLL).
1893. BRUNNER V. W., Ann. Mus. Genova, XXXIII, p. 172 (*rex*).
1895. BRUNNER V. W., Mon. Pseudophyll., p. 40 (*rex*).
1906. KIRBY, Syn. Cat. Orth., II, p. 295.

I place in this species one ♂ from Gunong Angsi, Negri Sembilan (2000'-2790'; April 1918) which differs from the description of Brunner (l.c.) by its smaller size and the less spinose legs. But the latter character seems not to be important, as Brunner from the ♀ only describes the spination of legs exactly; but from the ♂ he has not known the front and hind legs and says only, that the legs are less spinose than in ♀. I describe here therefore the armation of the legs as it is in the specimen of the Raffles Museum, but I do not think that there are specific differences.

Front femora above without spines, beneath with 5 moderate ones at the anterior (inner) keel, and with 5 or 6 smaller, hardly conspicuous ones at the outer (hind) carina. Middle femora above unarmed, beneath with 6-9 at the outer (anterior) keel increasing from base to knee, and with 6 or 7 little ones at the inner carina. Hind femora above acutely tuberculated, but without sharply pointed spines, except at the extreme base; beneath about a dozen sharp spines on both keels, on the inner carina moderate and subequal in length, on the outer distinctly increasing from base to knee. Fore tibiae above without spines, beneath with 5-6 small ones on each carina. Middle tibiae above with 3-4 spines beneath on the outer (anterior) keel with 4, on the inner with 5 smaller ones. Hind tibiae above without spines on the outer carina, and with 6-7 large spines strongly dilated at base on the inner one; beneath with 6-7 similar ones at the outer keel and with 8 small, slender spines at the inner carina.

Tegmina without the eye-spot as characteristic for *Cl. neriifolius*, and even without the small ring veins at this place, but with a regularly reticular venation between the radial and medial vein.

The longitudinal veins not darker tinged, but along the transversal veins on both sides with a row of nebular, blackish dots, finished near the longitudinal veins, especially near the media, by a somewhat larger and darker, distinctly black dot.

Length of body 36 mm, of pronotum 12 mm, of tegmina 70 mm. width of tegmina 32 mm, length of fore femora 10 mm, of hind femora 22 mm.

The species was hitherto known from Silhet, Burma, Tenasserim, Siam, Cambodia, Canton, Sumatra, Borneo, and New Caledonia.

Cleandrus hercules n. sp.

1 ♀ specimen, somewhat damaged, without locality label, in the collection of Raffles Museum, Singapore. Another, undamaged ♀ in the collection of Buitenzorg Museum from Borneo; I will describe therefore this species in another paper together with the material of Buitenzorg Museum, and give here a figure only of the specimen from Borneo.

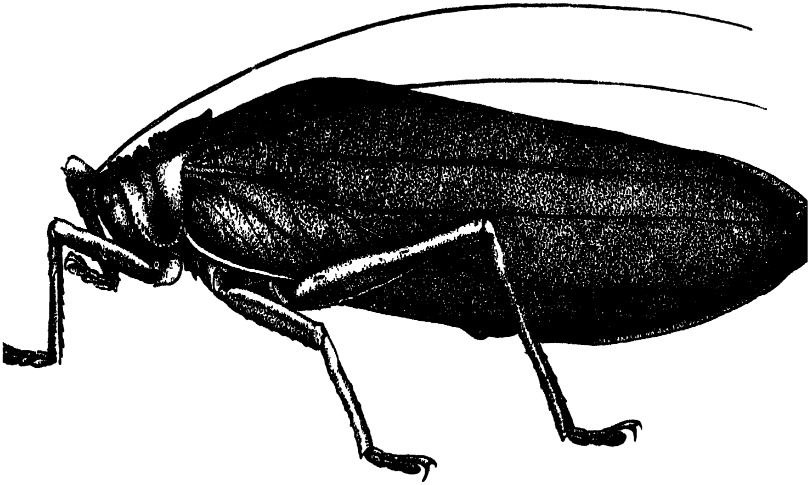


Fig. 27. *Cleandrus hercules* ♀, natural size. Del. Soedirman.

Genus **Onomarchus** Stål.

1874. STÅL, Rec. Orth., II, p. 51.
1892. PICTET & SAUSSURE, Icon. Saut. Vertes, p. 6, 14 (*Onomarcus*).
1895. BRUNNER v. W., Mon. Pseudophyll., p. 42.
1906. KIRBY, Syn. Cat. Orth., II, p. 296.

Onomarchus leuconotus (Serville).

1839. SERVILLE, Hist. Nat. Ins., Orth., p. 469 (*Pseudophyllus*).
1842. DE HAAN, Temminck, Verh., Orth., p. 204 (*Locusta Pseudophyllus leuconota*).

1862. Brunner v. W., Verh. zool.-bot. Ges. Wien, p. 93 (*Pseudophyllus uninotatus*).
1869. Walker, Cat. Derm. Salt. Brit. Mus., II, p. 410 (*Pseudophyllus*).
1874. Stål, Rec. Orth., II, p. 68.
1895. Brunner v. W., Mon. Pseudophyll., p. 43.
1906. Kirby, Syn. Cat. Orth., II, p. 296.
1915. Bruner, Univ. Stud. Lincoln, XV, 2, p. 273.
1920. *Pseudophyllium* Dammerman, Trop. Natuur, p. 152.
1920. Karny, Zool. Mededeel., V, 4, p. 208.

This common and widely distributed species is in the collection of Raffles Museum represented from the following localities:

Singapore (4 ♀♀.—6. July 1915; 1 ♀.—17. Sept. 1913; 1 ♀.—Presented by J. Lowe Esq., 1. Sept. 1911; 1 ♀.—Race Course, April 1916. 1 ♂.—Ponggol, May 1910; 1 ♂.—Fort Canning, 22. June 1898; 1 ♂.—April 1918, 1 ♀.—Presented by Teo Soo Pia, 9. Sept. 1913; 1 ♀.—Jan. 1896, 1 ♀.—Fort Canning, 18. Oct. 1917; 1 ♀.—Purchased, 20. Feb. 1918; 1 ♀.—Coronation Rd., 19. May 1921; Chua Hong Kay; 1 ♀.—Fort Canning, 27. Jan. 1916, 1 ♀; 12. Jan. 1916, 1 ♂; Nov. 1917, 1 ♀.—Presented by St. V. B. Down, 24. May 1921, 1 ♀.—).—Kiau, (2400'; 20. March 1899; 1 ♂).—Selangor (14. April 1897, 1 ♀).—Carcosa, Kuala Lumpur (5. April 1921. Knight coll.; 1 ♀, somewhat smaller than the others and very pale whitish).—Without indication of locality: 1 ♂, 4 ♀♀.

All these specimens belong to the true *leuconotus* (syn. *cretaceus* Pict. & Sauss.). The ♂♂ have the tegmina unicolorous and the pronotum perfectly smooth; in the ♀♀ the latter is somewhat tuberculated, but distinctly less than in *submuticus*. The tegmina are in some ♀♀ unicolorous, in some with one small whitish spot near the base, in others with two such transversal spots as in *latipennis*. But the formation of tegmina does not agree with this Chinese form, and is that of the true *cretaceus*. The ♂ from Kiau (Mt. Kinabalu, North Borneo) is distinctly larger than the others, of brown colour, and with the pronotum somewhat tuberculated; but I cannot distinguish it as a separate species. The measurements of this ♂ are:

Length of body 40 mm., of pronotum 10 mm., of tegmina 71 mm., width of tegmina 21 mm., length of hind femora 21 mm..

Perhaps belongs it to the Bornean form *tenebrosus* Walker, but it is not to be said certainly, since the original description is not sufficient and from that form hitherto the ♀ only is known.

Distribution: Cambodia, Tonkin, Malacca, Singapore, Sumatra, Java, Borneo, Mindanao, China.

Genus **Temnophyllus** Brunner v. W.

1895. Brunner v. W., Mon. Pseudophyll., p. 46.
1906. Kirby, Syn. Cat. Orth., II, p. 297.

Temnophyllus speciosus Brunner v. W.

1895. BRUNNER v. W., Mon. Pseudophyll., p. 46.
1906. KIRBY, Syn. Cat. Orth., II, p. 297.

1 ♀ from Pahang (1891) differing from typically coloured specimens by the black coloration of apical half of supra-anal plate and of the apex of ovipositor. All other characters quite as in *speciosus*, distinctly diverging from *atrosignatus*.

Hitherto known from Malacca and Northern Borneo.

Genus **Promeca** Brunner v. W.

1895. BRUNNER v. W., Mon. Pseudophyll., p. 52.
1906. KIRBY, Syn. Cat. Orth., II, p. 299.

Promeca unicolor Brunner v. W.

1895. BRUNNER v. W., Mon. Pseudophyll., p. 52.
1906. KIRBY, Syn. Cat. Orth., II, p. 299.

1 ♀ from Kadamaian River, Kinabalu (2100′; 21. III. 1899; R. Hanitsch).

Only known from Mt. Kinabalu, North Borneo.

Genus **Phyllomimus** Stål.

1873. STÅL, Oefv. Vet.-Akad. Förh., XXX (4), p. 44.
1874. STÅL, Rec. Orth., II, p. 52.
1892. PICTET & SAUSSURE, Icon. Saut. Vertes, p. 17 (*Microprion*).
1895. BRUNNER v. W., Mon. Pseudophyll., p. 53.
1906. KIRBY, Syn. Cat. Orth., II, p. 297 (*Microprion*), 299.

Phyllomimus detersus (Walker).

1869. WALKER, Cat. Derm. Salt. Brit. Mus., II, p. 406 (*Pseudophyllus detersus, Ps. sinensis*).
1873. STÅL, Oefv. Vet.-Akad. Förh., XXX (4), p. 48 (*granulosus*).
1874. STÅL, Rec. Orth., II, p. 69 (*granulosus*).
1892. PICTET & SAUSSURE, Icon. Saut. Vertes, p. 19 (*truncatifolia*).
1895. BRUNNER v. W., Mon. Pseudophyll., p. 55 (*granulosus*).
1906. KIRBY, Syn. Cat. Orth., II, p. 299.
1915. BRUNER, Univ. Stud. Lincoln, XV, 2, p. 273.

Delendus:

1921. KARNY, Phil. Journ. Sci., XVIII, 5, p. 611 (belonging to *philippinensis* PICTET & SAUSSURE which must be considered as a different species!).

There are in the collection of Raffles Museum two ♀ ♀, each with the usual black spot at the base of tegmina after the radial vein.

Cape Rachado Light House, Coast Malay Peninsula (Dec. 1920)—Long Mujan, Baram River, Sarawak (4. Oct. 1920: J. C. Moulton).

The species was hitherto known from China, Philippine Islands, Java, Celebes and Moluccas.

Phyllomimus punctiger n. sp.

♀. Very near to *detersus,* but more compressed and slender. Pale yellowish (probably green when alive), tegmina bright green, especially towards the apex. Disc of pronotum as in *detersus,* but rounded behind. Lateral lobes considerably longer than high, with obliquely truncate fore angle and bluntly rectangular hind angle; lower margin somewhat ascendent backwards. Fore angle set with some blunt teeth, lower margin without such. Humeral sinus distinct, better developed than in *detersus,* roundly emarginated. Tegmina as in *detersus,* but somewhat more narrowed towards the apex, which is narrowly rounded; at base behind the radial vein a very small black dot visible with magnifying-glass only; a similar black dot in the middle of each cell between radial and medial vein, in distal half of tegmen. Mesosternum with slightly emarginate fore margin and obliquely truncate fore angles bearing some well developed tubercles. Metasternum considerably wider than mesosternum; both strongly transverse. Legs as in *detersus,* but hind femora beneath on outer margin with about 20 teeth which are blackish at apex. Ovipositor somewhat shorter than in *detersus,* of the same shape. Subgenital plate (♀) triangular, acutely excised at apex.

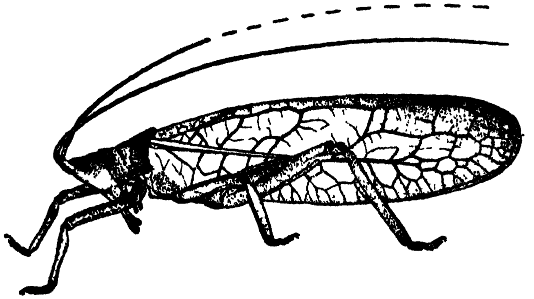


Fig. 28. *Phyllomimus punctiger* ♀, natural size. Del. Soehanam.

Length of body 28 mm., of pronotum 7.5 mm., of tegmina 49 mm, width of tegmina 15 mm., length of fore femora 8 mm., of hind femora 17 mm., of ovipositor 15 mm.

1 ♀ from Pulo Jarak (7. April 1921; V. Knight).

Phyllomimus inversus Brunner v. W.

1895. BRUNNER v. W., Mon. Pseudophyll., p. 57.
1906. KIRBY, Syn. Cat. Orth., II, p. 300.
1909. REHN, Bull. Amer. Mus. Nat. Hist., N. Y., XXVI, p. 196.
1915. BRUNER, Univ. Stud. Lincoln, XV, 2, p. 274.

1 ♀ from Penang (1500'-2428'; May 1917). The teeth on lower margin of hind femora somewhat more numerous than in description of *inversus* given by Brunner, practically as in *pallidus.* But all other characters agree with *inversus,* not with *pallidus.*

Subgenital plate (♀) trapezoidal, about as long as wide at base, emarginated at apex.

Further distribution: Java, Sumatra, Philippine Islands.

Genus **Phyllozelus** Pictet & Saussure.

1892. PICTET & SAUSSURE, Icon. Saut. Vertes, p. 11.
1893. BRUNNER v. W., Ann. Mus. Genova, XXXIII, p. 174.
1895. BRUNNER v. W., Mon. Pseudophyll., p. 60.
1906. KIRBY, Syn. Cat. Orth., II, p. 300.

Phyllozelus siccus (Walker).

1869. WALKER, Cat. Derm. Salt. Mus., II, p. 403 (*Pseudophyllus*).
1893. BRUNNER v. W., Ann. Mus. Genova, XXXIII, p. 174 (*infumatus*).
1895. BRUNNER v. W., Mon. Pseudophyll., p. 60 (*infumatus*).
1906. KIRBY, Syn. Cat. Orth., II, p. 300.

2 ♀ ♀ and 1 ♂ from Singapore (♂ : 1. Aug. 1913.—1 ♀ : June 1902, pres. by John Haffenden Esq.).

Further distribution: India, Ceylon, Burma, Assam, Silhet, Himalaya, Sumatra.

Genus **Timanthes** Stål.

Timanthes lobifolia (De Haan).

1842. *Locusta (Aprion) lobifolia* De Haan, Temminck, Verh., Orth., p. 206.

Further literature see in my "Beiträge zur malayischen Orthopterenfauna X" (Treubia, 1923).

2 ♀ ♀ from West Sumatra (Lebong Tandai; coll. Mr. C. J. Brooks).

Genus **Zatricaprion** n. gen.

Yellowish green. Head conical, as seen from above, with pointed vertex. Antennae not annulated. Occiput arched, without a keel. Pronotum rounded behind, arched, with a very indistinct median carina, without granulated length-rows; hind furrow placed at or behind the middle of disc. Fore angle of tegmina strongly produced; prae-radial field with remote, parallel transverse nervures, bifurcate before their ends; post-radial fields with remote, oblique cross veins, contiguous or subcontiguous to each other throughout from radial to cubital vein. Wings hyaline, not overreaching the tegmina. Prosternum without spines. Mesosternum broad, transverse, plain, at fore margin sharply bordered, not indented, with sharp fore angles. Metasternum trapezoidal, its sides strongly converging backwards. Both genicular lobes of fore femur very short and blunt, not produced. Hind femora somewhat dilated towards the apex, densely serrate beneath on outer margin. Subgenital plate of ♂ very narrow, in its posterior part nearly cylindrical, with two well developed, strongly depressed styles.

This new genus comes in Brunner's key between *Gonyatopus* and the *Micropion-Tomias*-group, diverging from the latter by the quite different venation of tegmina, from *Gonyatopus* by the outer genicular lobe of fore femora not produced and the transverse nervures of tegmina oblique, less numerous and more regularly disposed. By this latter character and by the quite different shape of ♂ subgenital plate, *Zatricaprion* may be distinguished also from *Tympanoptera* Pictet & Saussure (nec Brunner v. W.). The oblique, contiguous cross veins of tegmina remind one somewhat of *Heteraprium*, but in the latter the shape of pronotum is quite different, and there are between the oblique veins everywhere perpendicular ones inserted, in *Zatricaprion* between medial and cubital vein only in the distal part of tegmen.

Zatricaprion reticulatus n. sp.

♂, ♀. Yellowish green, tegmina pale green, with a bright yellow stripe along the fore margin continued throughout the lower margin of lateral lobes of pronotum.

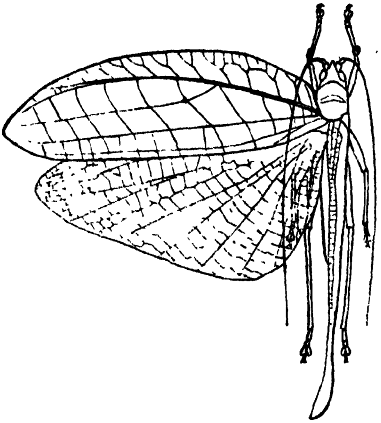


Fig. 29. *Zatricaprion reticulatus*, natural size. Del. Soedirman.

Vertex blackish bordered, as seen from above, in the ♂; unicolorous in ♀. Pronotum remotely and very bluntly granulated; lower margin of lateral lobes with some very small and blunt teeth. Fore margin of tegmina rounded, hind margin straight. Field between radial vein and sector a little wider than that between sector and media, and this somewhat wider than that between medial and cubital vein. Tympanum of ♂ about as long as pronotum. All femora serrate beneath, the two posterior pairs more closely than the anterior one.

Supra-anal plate of ♀ ovate, longer than wide at base, somewhat pointed at apex, reaching to the end of cerci. Ovipositor strongly compressed, blackish towards the apex, with both margins serrate before apex, the upper one very slightly sinuate, the lower one upcurved; apical part with some strongly prominent parallel, perpendicular wrinkles, especially along the upper margin. Subgenital plate of ♀ bluntly triangular, slightly emarginate at extreme apex.

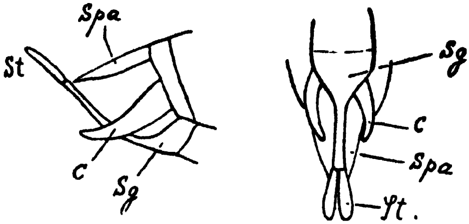


Fig. 30. End of ♂ abdomen of *Zatricaprion reticulatus*, lateral and ventral view, enlarged. Spa. Supraanal plate. C. Cerci. Sg. Subgenital plate. St. Styles.

Supra-anal plate of ♂ practically as in ♀. Cerci cylindrical, very slightly curved, subacute at apex. Subgenital plate (♂) long: its sides parallel at base, then strongly converging; apical part nearly cylindrical. Styles long, strongly depressed.

	♂	♀
Length of body	18.5 mm.	24 mm.
„ „ pronotum	4 „	5 „
.. „ tegmina	33 „	42 „
Width „ „	9 „	12.5 „
Length of fore femora	5 „	5 „
„ „ hind „	10.5 „	12 „
„ „ ovipositor	——	13.5 „

1 ♂ from Bukit Kutu, Selangor (April 1915; 3457′), and 1 ♀ from Penang (1500′-2428′: May 1917). The same species is represented in the collection of Buitenzorg Museum by 3 ♀ ♀ from Sumatra and Northern Borneo.

Genus **Heterapriun** Krauss.

1903. Krauss, Semon, Zool. Forsch. Austral., V, p. 764.
1910. Kirby, Syn. Cat. Orth., III, p. 572.

Heterapriun brunneri Krauss.

1903. Krauss, Semon, Zool. Forsch. Austral., V, p. 747, 764.
1910. Kirby, Syn. Cat. Orth., III, p. 572.

1 ♀ from Pontianak (S. Mayer Esq., 13. March 1901), quite conformable in all characters with some specimens of Buitenzorg Museum from New Guinea. It is very interesting, that this species hitherto known from New Guinea and Waigiou only, occurs also in Western Borneo.

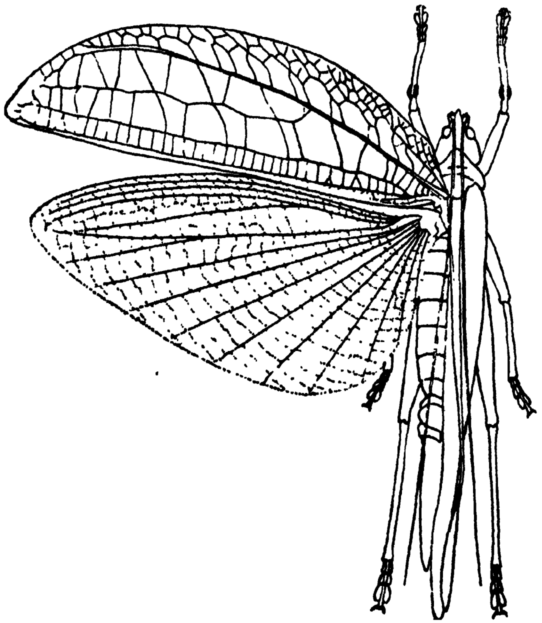


Fig. 31. *Heteraprium brunneri* ♀, from Digoel, natural size. Del. Soedirman.

Genus **Chondrodera** Karsch.

1890. KARSCH, Ent. Nachr., XVI, p. 266, 273.
1891. KARSCH, Berl. Ent. Zeitschr., XXXVI, p. 77, 93.
1895. BRUNNER v. W., Mon. Pseudophyll., p. 79.
1906. KIRBY, Syn. Cat. Orth., II, p. 305.

Chondrodera borneensis Brunner v. W.

1895. BRUNNER v. W., Mon. Pseudophyll., p. 80.
1906. KIRBY, Syn. Cat. Orth., II, p. 305.

1 ♀ from Bentong, Pahang (22. May 1916; presented by Mr. Stuart Greenhill) belongs apparently to this species. The white spot at the base of tegmina is not only blackish-, but also reddish-marginated; their surface has the four oblique transverse punctured stripes as described by me for *rubromarginata* (Zool. Mededeel V, 4, p. 180) and also the black spots as described by Brunner for *borneensis*. The basal fore edge of tegmina is more or less blunt, not as sharply produced as in *Timanthes*. Fore femora pilose, but without spines, which are present in *rubromarginata*. Hind femora armed with about 8 spines, therefore more than in the typical *borneensis* (after Brunner's description).

This species was hitherto known from Borneo and Sumatra only.

To the same species belongs perhaps also a ♀ larve from Kota Tinggi, Johore (Aug. 1917) having a distinct median keel between the two granulated lines on disc of pronotum.

Genus **Sathrophyllia** Stål.

1874. Stål, Rec. Orth., II, p. 54, 70.
1895. Brunner v. W., Mon. Pseudophyll., p. 86.
1906. Kirby, Syn. Cat. Orth., II, p. 306.
1909. Maxwell-Lefroy, Ind. Ins. Life, p. 96.

Sathrophyllia femorata (Fabricius).

1787. Fabricius, Mant. Ins., I, p. 233 (*Locusta*).
1813. Stoll, Spectres, Saut., p. 16 (*Gryllus Tettigonia*).
1838. Burmeister, Handb. Ent., II, p. 698 (*Pseudophyllus fenestratus*).
1842. De Haan, Temminck, Verh., Orth., p. 202 (*Locusta*).
1869. Walker, Cat. Derm. Salt. Brit. Mus., II, p. 401 (*Pseudophyllus femoratus*),
1874. Stål, Rec. Orth., II, p. 72.
1893. Brunner v. W., Ann. Mus. Genova, (2), XIII, p. 177.
1895. Brunner v. W., Mon. Pseudophyll., p. 88.
1902. Koningsberger, Bull. Inst. Bot. Buitenzorg, XIII, p. 12 (*Dehaania*).
1906. Kirby, Syn. Cat. Orth., II, p. 307.
1915. Koningsberger, Java Zoölogisch en Biologisch, p. 96 (*Dehaania*).
1920. Kirby, Zool. Mededeel., V, 4, p. 181, 208.

1 ♀ without indication of locality.

Distribution:—India, Burma, Cambodia, Sumatra, Java, Borneo.

Genus **Tegra** Walker.

1870. Walker, Cat. Derm. Salt. Brit. Mus., III, p. 439.
1874. Stål, Rec. Orth., II, p. 54 (*Tarphe*).
1895. Brunner v. W., Mon. Pseudophyll., p. 90 (*Tarphe*).
1906. Kirby, Syn. Cat. Orth., II, p. 308.

Tegra novae-hollandiae (DeHaan).

1842. De Haan, Temminck, Verh., Orth., p. 202 (*Locusta*).
1870. Walker, Cat. Derm. Salt. Brit. Mus., III, p. 439.
1874. Stål, Rec. Orth., II, p. 72 (*Tarphe*).
1893. Brunner v. W., Ann. Mus. Genova (2) XIII, p. 177 (*Tarphe*).
1895. Brunner v. W., Mon. Pseudophyll., p. 90 (*Tarphe*).
1906. Kirby, Syn. Cat. Orth., II, p. 308.
1909. Rehn, Bull. Amer. Mus. Nat. Hist., N. Y., XXVI, 13, p. 202 (*Tarphe*).
1920. Karny, Zool. Mededeel., V, 4, p. 181, 208.

4 ♀♀, 2 without locality label, 1 from Pahang, and 1 from Bukit Kutu, Selangor (April 1915). The latter and one of the unlabelled specimens with the middle femora nearly unicolorous; the two other ones having on their outside a large, pale testaceous cross band. 1 ♀ from West Sumatra (Lebong Tandai; coll. C. J. Brooks).

This species was hitherto known from the following localities: India, Himalaya, Bhamò, Assam, Malacca, Tringany, Sumatra, Java, Borneo and Australia.

Genus **Olcinia** Stål.

1877. STÅL, Oefv. Vet.-Akad. Förh., XXXIV, (10), p. 45.
1895. BRUNNER v. W., Mon. Pseudophyll., p. 92.
1906. KIRBY, Syn. Cat. Orth., II, p. 308.

Olcinia excisa n. sp. (Plate II, fig. 4).

♀. Pale brownish yellow, marbled with blackish grey and with reddish brown.

Vertex shorter than the first antennal joint, slightly sulcate above, with a distinct incision at tip. Eyes globular, prominent. Front pale, greyish. Antennae broken off in the type specimen.

Pronotum nearly saddle-shaped, with some sharply pointed tubercles; anterior margin rounded, produced; hind margin deeply triangulately incised in the middle, thus forming two triangular, posteriorly produced lobes. The margins of this incision regularly set with tubercles, quite symmetrical. It is therefore certainly no abnormality nor violation, but positively a character peculiar for this species. Lateral lobes formed as usual in this genus.

Tegmina reaching beyond the tip of ovipositor, set with some elevated nodes, the fore margin produced into five obtuse lobes, the hind margin nearly straight. Apical part relatively narrower than in *O. crenifolia*, with the tip rounded off. Veins as in *crenifolia*. Wings reaching beyond the tip of tegmina, with the apical part coriaceous, of the same colour as tegmina; the remaining part pale, hyaline, with the transverse veins black, surrounded with greyish.

Legs formed as usually in this genus. Foramina shell-shaped. Upper margin of the middle femora slightly bisinuate, but distinctly less than in the genus *Cymatomera*. Prosternum without spines or tubercles. Meso and metasternum very broad; fore margin of the former slightly emarginated in the middle, not crenulated, with the lateral angles obliquely truncated. Abdomen shining black.

Ovipositor straight, somewhat broad, black, with the upper margin straight, the lower one somewhat convex, acute at the tip. Cerci stout, blunt. Subgenital plate small, bluntly triangular, emarginated at apex.

Length of body 38 mm., of pronotum 6.5 mm., of tegmina 54 mm., width of tegmina 18.5 mm., length of hind femora 19 mm., of ovipositor 23 mm.

1 ♀ from Borneo.

This species is to be placed into the genus *Olcinia* by the shape of tegmina; it is very different from both hitherto known species of this genus, from the Sundaic *crenifolia* by the pale front, from the Philippine *erosifolia* by the pale hind knees. From both these species, and also from all hitherto known species of the whole *Sathrophyllia*-group it may easily be distinguished by its deeply emarginated hind margin of pronotum, a character hitherto unknown in this group. It could therefore possibly form a peculiar genus.

Genus **Typhoptera** Kirby.

1895. BRUNNER v. W., Mon. Pseudophyll., p. 94 (*Capnoptera*, nec LOEW).
1900. ANNANDALE, Proc. Zool. Soc. London; p. 854, 855 (*Capnoptera*, nec LOEW).
1906. KIRBY, Syn. Cat. Orth., II, p. 309.

Typhoptera unicolor (Brunner v. W.).

1895. BRUNNER v. W., Mon. Pseudophyll., p. 96 (*Capnoptera*).
1906. KIRBY, Syn. Cat. Orth., II, p. 309.

From this species hitherto the ♀ only was known. In the collection of Raffles Museum, however, it is represented by 2 ♂ ♂, both from Penang (1500′-2428′; May 1917).

♂. Smaller in size than ♀. Antennae with a few widely remote, broad, pale rings, the first of them 1 cm. distant from base. All other characters quite as in ♀, especially also the black-banded colour of abdomen.

Anal segment somewhat shorter than the preceding one, broadly rounded, bluntly emarginate at the middle of hind margin. Supra-anal plate elliptical, longer than wide, with a median, longitudinal furrow. Cerci short, conical, pointed and somewhat incurved at extreme apex. Subgenital plate nearly twice as long as wide at base, with parallel margins in basal half and converging ones in distal half, angulately excised at apex. Styles cylindrical, nearly twice as long as the apical lobes of subgenital plate, brown at base only, further blackish.

Length of body 22 mm., of pronotum 4.5 mm., of tegmina 37 mm., width of tegmina 9.5 mm., length of fore femora 6 mm., of hind femora 12 mm.

Hitherto known from Malacca only.

Subfam. ***Listroscelinae.***

Genus **Xiphidiopsis** Redtenbacher.

1891. REDTENBACHER, Verh. zool.-bot. Ges. Wien, XLI, p. 531.
1900. BOLIVAR, Ann. Soc. Ent. France, LXVIII, p. 781 (*Xyphidiopsis*).
1906. KIRBY, Syn. Cat. Orth., II, p. 284.
1907. KARNY, Abh. zool.-bot. Ges. Wien, IV, 3, p. 98, 99.
1912. KARNY, Wytsman, Genera Insectorum, fasc. 131, p. 5.

As to the relations of this genus to *Teratura* and the **Meconeminae** see Treubia, I, 4, p. 294 (1921).

Xiphidiopsis cyclolabia n. sp.

♂, ♀. Of small size, as usual in this genus. General colour greenish yellow, lateral margins of pronotum with a broad yellow stripe. Occiput concolorous, or (in one of the specimens before me) longitudinally marked with blackish to the tip of vertex.

Pronotum rounded, smooth; hind lobe very strongly produced backwards, rounded, nearly longer than wide at base; lateral lobes somewhat longer than high, with obtuse-angulate lower margin and distinct humeral sinus. Tegmina very long and narrow, well overreaching the end of abdomen and the hind knees. Wings about 1 mm. longer than tegmina. Sterna unarmed. Fore coxae with a sharp, curved spine. Fore and middle femora unarmed, sulcate beneath. Fore tibiae with open tympanum on both sides; beneath armed with 4 pairs of not very long, movable, dark spines. Middle tibiae dilated and somewhat swollen in two basal thirds, suddenly narrowed in apical third: spines as in the fore tibiae. Hind femora unarmed; hind tibiae strongly spined above, with a very few, small spines beneath.

Anal segment of ♂ truncate; supra-anal plate small, transverse. Cerci (♂) strongly incurved, touching each other at apex, stouter in basal part, narrower apically, blunt at apex; upper margin (in lateral view) twice emarginated. Subgenital plate of ♂ trapezoidal, truncate behind, with moderately long, cylindrical styles.

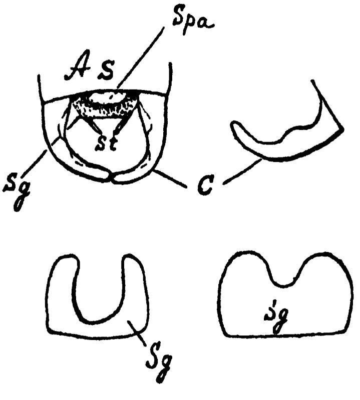


Fig. 32. Above: End of ♂ abdomen of *Xiphidiopsis cyclolabia;* left: dorsal view (A.s. Anal segment. Spa. Supraanal plate. C. Cerci. Sg. Subgenital plate. St. Styles); right: cercus, lateral view.—Beneath: ♀ Subgenital plate (Sg.) of *Xiphidiopsis cyclolabia* (left) and *Teratura simplex* (right).—Enlarged.

Anal segment of ♀ strongly excised, of a similar shape as the subgenital plate (♀, fig.). Cerci (♀) somewhat long and slender, clavate in apical half, pointed at extreme apex. Ovipositor of the shape usual in this genus, very slightly upcurved, with smooth margins, pointed at apex; upper valvules at base on each side with a shallow longitudinal impression. Subgenital plate of ♀ deeply emarginated, nearly to its base, with rounded lobes, which are about twice as long as wide.

		♂	♀
Length of body	.. ..	9 -11 mm.	10 mm.
„ „ pronotum	. ..	3.7- 3.8 „	3.5 „
„ „ tegmina	.. ..	15.5-18 „	18 „
„ „ hind femora	.. ..	8 - 9.5 „	9.5 „
„ „ ovipositor	.. ..	———	6.5 „

2 ♂ ♂ and 1 ♀ from Gunong Kledang, Perak (2646′; Nov. 1916).

By the development of spines on fore tibiae, this species seems to be about intermediate between *Xiphidiopsis* and *Teratura.* Of the former genus, it comes nearest to the Indian *X. forficata* Bolivar, but diverging by the form of ♂ cerci and supra-anal plate (♀ of *forficata* being unknown hitherto). It is perhaps still nearer allied to the Philippine *Teratura simplex* Karny, but diverging from it by the twice emarginated upper margin of cerci in ♂ (equally curved in *simplex*) and by the more strongly excised subgenital plate in ♀.—Further there is no other species hitherto known which could be confounded with *cyclolabia.*

Xiphidiopsis mirabilis n. sp.

♂. Size somewhat larger than usual in this genus. Body yellow (probably green when alive), tegmina pale yellowish green, with darker yellow hind margin. Head and prothorax without markings.

Eyes protruding. Vertex conical, slightly sulcate above, not yet half as long as the first antennal joint. Pronotum shaped as in the preceding species, but the hind lobe somewhat less produced backwards, a little shorter than wide at base. Tegmina far over reaching the end of abdomen and hind knees; wings a very little (only 0.7 mm.) longer than tegmina. Fore coxae strongly spined. Fore and middle femora unarmed, sulcate beneath. Fore tibiae with the anterior tympanum strongly conchate, the posterior one open; beneath with 6 pairs of very long, movable spines, decreasing in length from base to apex. Middle tibiae of the same shape as in the preceding species, spined as the fore tibiae, but the spines a little shorter. Hind femora swollen at base, slenderer towards the apex, unarmed. Hind tibiae above with short, black spines throughout the whole length (except extreme base), beneath in the two apical thirds with pale spines, longer and closer to each other than the upper ones.

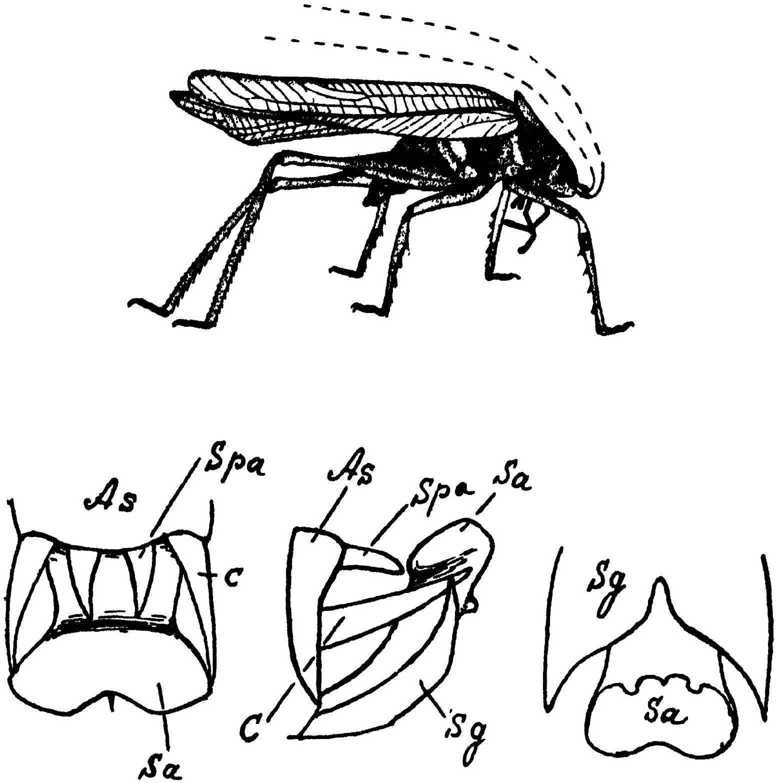


Fig. 33. *Xiphidiopsis mirabilis* ♂; above: total, twice enlarged.—Beneath: End of abdomen, dorsal, lateral and ventral view, enlarged. A.s. Anal segment. Spa. Supra-anal plate. C. Cerci. Sa. Subanal plate. Sg. Subgenital plate.

Anal segment (♂) slightly emarginate on each side, broadly rounded in the middle. Supra-anal plate divided into two horn-like projections. Cerci moderately long, nearly straight. Subgenital plate deeply excised, with sharply pointed lobes; the margin of this excision slightly S-shaped. There is above from the subgenital plate a very remarkable second plate (perhaps a subanal plate as in the *Holochloras?*) of a very characteristic shape; its lateral margins converging from base to middle, then diverging again and thus forming a large, rounded end-lobe, emarginated behind, strongly arched above, excavate below; the proximal margin of this excavation with a short, pointed tooth in the middle, and a large, blunt tubercle on each side, which protrudes strongly backwards (perpendicularly to the under surface of this plate). This plate gives a very remarkable character to this species, nothing similar being hitherto known from others.

Length of body 15 mm., of pronotum 5.5 mm., of tegmina 24 mm., width of tegmina 3 mm., length of hind femora 11.5 mm.

1 ♂ from Penang (2000′-2428′; May 1917).

This species comes by the shape of tympana close to *distincta* and *tenthroides*, differing from both and other hitherto known species by the somewhat larger size and the very remarkable end of ♂ abdomen.

Genus **Hexacentrus** Serville.

1831. Serville, Ann. Sci. Nat., XXII, p. 145.
1838. Burmeister, Handb. Ent., II, p. 714.
1869. Walker, Cat. Derm. Salt. Brit. Mus., II, p. 281 (*Piura*), 302, 393 (*Tedla*).
1874. Stål, Rec. Orth., II, p. 102.
1891. Redtenbacher, Verh. zool.-bot. Ges. Wien, XLI, p. 547.
1906. Kirby, Syn. Cat. Orth., II, p. 287.
1907. Karny, Abh. zool.-bot. Ges. Wien, IV, 3, p. 98, 107.
1908. Matsumura & Shiraki, Journ. Coll. Agric., Sapporo, III, 1, p. 62.
1912. Karny, Wytsman, Genera Insectorum, fasc. 131, p. 15.

Hexacentrus unicolor Serville.

1831. Serville, Ann. Sci. Nat., XXII, p. 146.
1838. Burmeister, Handb. Ent., II, p. 714 (*plantaris, unicolor*).
1839. Serville, Nat. Hist. Ins., Orth., p. 531 (*Locusta*).
1842. De Haan, Temminck, Verh., Orth., p. 216 (*Locusta plantaris*).
1869. Walker, Cat. Derm. Salt. Brit. Mus., II, p. 283 (*Locusta*), 302 (*H. plantaris*).
1871. Walker, Cat. Derm. Salt. Brit. Mus., Suppl., p. 36 (*Locusta*).
1891. Redtenbacher, Verh. zoo.-bot. Ges. Wien, XLI, p. 552.
1893. Brunner v. W., Ann. Mus. Genova, (2), XIII, p. 181.
1903. Krauss, Semon, Zool. Forsch. Austral., V, p. 747.
1904. Krausze, Ins. Börse, XXI.
1906. Kirby, Syn. Cat. Orth., II, p. 287.
1907. Karny, Abh. zool.-bot. Ges. Wien, IV, 3, p. 108.
1908. Matsumura & Shiraki, Journ. Coll. Agric., Sapporo, III, 1, p. 63.
1909. Rehn, Bull. Amer. Mus. Nat. Hist., N. Y., XXVI, 13, p. 206.
1912. Karny, Wytsman, Genera Insectorum, fasc. 131, p. 16.
1915. Bruner, Univ. Stud. Lincoln, XV, 2, p. 272.
1915. Karny, Suppl. Ent., p. 74.
1920. Karny, Zool. Mededeel., V, 4, p. 206.
1921. Karny, Philipp. Journ. Sci., XVIII, 5, p. 610.

In the collection of Raffles Museum represented from the following localities: Pahang (1 ♂).—Singapore (June 1902; 1 ♂.—Cavanagh Rd., May 1913; 1 ♂).—Baram River, Sarawak (Long Mujan; 4. Oct. 1920; J. C. Moulton; 2 ♂ ♂, 1 ♀.— 9. Sept. 1920; J. C. Moulton; 1 ♀.—27 Sept. 1920; J. C. Moulton; 1 ♂).

This species was hitherto known from India, Burma, Singapore, Sumatra, Java, Lombok, Amboina, Celebes, Borneo, Philippine Isl., Formosa, Japan, China, Amoy, Cochinchina, Annam.

Subfam. ***Conocephalinae.***

Genus **Xiphidion** Serville.

1831. Serville, Ann. Sci. Nat., XXII, p. 151.
1838. Burmeister, Handb. Ent., II, p. 707 (*Xiphidium*).

1853. FIEBER, Lotos, III, p. 170 (*Xyphidium*).
1891. REDTENBACHER, Verh. zool.-bot. Ges. Wien, XLI, p. 493 (*Xiphidium*).
1907. KARNY, Abh. zool.-bot. Ges. Wien, IV, 3, p. 85.
1912. KARNY, Wytsman, Genera Insectorum, fasc. 135, p. 8, 10.

Xiphidion longipenne (DeHaan).

1842. DE HAAN, Temminck, Verh., Orth., p. 189 (*Locusta Xiphidium longipennis*).
1869. WALKER, Cat. Derm. Salt. Brit. Mus., II, p. 274 (*Xiphidium*).
1891. REDTENBACHER, Verh. zool.-bot. Ges. Wien, XLI, p. 512 (*Xiphidium*).
1893. BRUNNER v. W., Ann. Mus. Genova, (2), XIII, p. 181 (*Xiphidium*).
1906. KIRBY, Syn. Cat. Orth., II, p. 278 (*Anisoptera*).
1907. KARNY, Abh. zool.-bot. Ges., IV, 3, p. 92.
1908. MATSUMURA & SHIRAKI, Journ. Coll. Agric., Sapporo, III, 1, p. 54 (*Xiphidium*).
1909. REHN, Bull. Amer. Mus. Nat. Hist., N. Y., XXVI, 13, p. 206.
1912. KARNY, Wytsman, Genera Insectorum, fasc. 135, p. 11 (*Conocephalus Xiphidion longipennis*).
1913. BOLIVAR, Asoc. Esp. Progr. Cienc., 4a, Ci. Nat., p. 8 (*Conocephalus longipennis*).
1915. BRUNER, Univ. Stud. Lincoln, XV, 2, p. 272 (*Xiphidion*).
1920. KARNY, Zool. Mededeel., V, 4, p. 169, 206.
1921. KARNY, Philipp. Journ. Sci., XVIII, 5, p. 608.

1 ♂ from Pahang, and 3 ♀ ♀ from Kota Tinggi, Johore (August 1917).

Distribution: India, Ceylon, Burma, Penang, Sumatra, Aru, Philippine Isl., Japan, China, Cambodia, Cochinchina, Zanzibar.

Xiphidion longicorne Redtenbacher.

1891. REDTENBACHER, Verh. zool.-bot. Ges. Wien, XLI, p. 513 (*Xiphidium*).
1906. KIRBY, Syn. Cat. Orth., II, p. 278 (*Anisoptera*).
1907. KARNY, Abh. zool.-bot. Ges. Wien, IV, 3, p. 92.
1908. MATSUMURA & SHIRAKI, Journ. Coll. Agric., Sapporo, III, 1, p. 55 (*Xiphidium*).
1912. KARNY, Wytsman, Genera Insectorum, fasc. 135, p. 11 (*Conocephalus Xiphidion longicornis*).

1 ♀ from Long Mujan, Baram River, Sarawak (4. Oct. 1920; J. C. Moulton).

Distribution: India, Java, Borneo, Pelew, Yap, Raratonga, Caroline Isl., Japan.

Xiphidion maculatum Le Guillou.

1841. LE GUILLOU, Rev. Zool., p. 294 (*Xiphidium*).
1842. DE HAAN, Temminck, Verh., Orth., p. 189 (*Locusta Xiphidium lepida*).
1869. WALKER, Cat. Derm. Salt. Brit. Mus., II, p. 275 (*lepidum, maculatum*).
1891. REDTENBACHER, Verh. zool.-bot. Ges. Wien, XLI, p. 515 (*Xiphidium*).
1893. BRUNNER v. W., Ann. Mus. Genova, (2), XIII, p. 181 (*Xiphidium*).
1903. JACOBSON & BIANCHI, Orth. Pseudoneur. Russ., p. 385 (*Xiphidium*).
1906. KIRBY, Syn. Cat. Orth., II, p. 278 (*Anisoptera*).
1907. KARNY, Abh. zool.-bot. Ges. Wien, IV, 3, p. 93 (1907).
1908. MATSUMURA & SHIRAKI, Journ. Coll. Agric., Sapporo, III, 1, p. 51 (*Xiphidium*).
1912. KARNY, Wytsman, Genera Insectorum, fasc. 135, p. 11 (*Conocephalus Xiphidion maculatus*).

1913. BOLIVAR, Asoc. Esp. Progr. Cienc., 4a, Ci. Nat., p. 8 (*Conocephalus maculatus*).
1915. BRUNER, Univ. Stud. Lincoln, XV, 2, p. 272 (*Xiphidion*).
1915. KARNY, Suppl. Ent., p. 74.
1920. KARNY, Zool. Mededeel., V, 4, p. 170, 206.
1921. KARNY, Trop. Natuur, X, 5, p. 70, Fig. 10.
1921. KARNY, Philipp. Journ. Sci., XVIII, 5, p. 609.

2 ♂ ♂ and 3 ♀ ♀ from P. Ayer Merbau, near Singapore (14.-16. May 1921; F. N. Chasen).

Distribution: Africa, Madagascar;—South and East Asia: India, Ceylon, Burma Penang, Malacca, Sumatra. Java, Borneo, Celebes, Philippine Isl., Formosa, Amoy. Japan.

Subfam. **Agraecilnae.**

Genus **Subria** Stål.

1874. STÅL, Rec. Orth., II, p. 101.
1891. REDTENBACHER, Verh. zool.-bot. Ges. Wien, XLI, p. 433.
1897. BRONGNIART, Bull. Soc. Ent. France, p. 83.
1906. KIRBY, Syn. Cat. Orth., II, p. 255.
1907. KARNY, Abh. zool.-bot. Ges. Wien, IV, 3, p. 51, 57.
1912. KARNY, Wytsman, Genera Insectorum, fasc. 141, p. 9.

Subria moultonii new spec. (Plate II, fig. 2).

♀. Size stouter than usually in this genus. Colour testaceous, marbled with brownish black.

Vertex conical, distinctly shorter than the first antennal joint, at extreme apex very slightly sulcate. Antennae having the first joint a little incrassate in the apical half of the inner margin; the two first joints beneath black, the others a little infuscated; the upper surface of antennae unicolorous brown, not darker annulated. Eyes globular, prominent. Front shining, on the sides a little darker, with some faintly impressed points. Clypeus ferrugineous, mandibles black at their inner margin.

Pronotum nearly saddle-shaped, with two distinct constrictions, the later of which more expressed, near the middle of the disc. The whole surface strongly impressed-punctured. Hind margin roundly produced backwards. The whole pronotum concolorous testaceous, but at the limit between the disc and the lateral lobes a somewhat broad, deeply black, double S-shaped sinuated longitudinal band. Lateral lobes longer than high, without teeth, behind the fore coxae highest, with the lower margin sinuated; humeral sinus distinct, but not very much expressed.

Prosternum without spines. Meso- and metasternum rounded off. Tegmina narrow, broadest near the base, hardly reaching to the tip of ovipositor, rounded at apex, testaceous, marbled with blackish.

Legs somewhat long, yellowish brown, marbled with blackish, unarmed above; hind femora strongly incrassate in the basal half. Genicular lobes acute, but the outer ones of fore femora blunt; on the hind femora both terminated in a spine. Fore femora beneath on the inner (anterior) margin with 3-4 small spines, on the outer one with 1-3 near the apex. Middle femora on the outer margin 4-5 spined, on the inner unarmed. Hind femora with both margins shortly spined. Fore and middle tibiae a little compressed, rounded above, not sulcate, beneath on both margins spined, above without spines. Foramina linear. Hind tibiae well spined above, beneath with only a few small spines.

Ovipositor darker than the body, compressed, a little narrowed near base, somewhat broader in the middle, with the upper margin nearly straight, the lower one convex, blunt at tip.

Length of body 28·5 mm, of pronotum 10 mm, of tegmina 36 mm, of hind femora 23 mm, of ovipositor 20 mm.

1 ♀ from Baram River, Sarawak (1920; J. C. Moulton).

I have allowed myself the pleasure of naming this interesting new species after its discoverer, Mr. J. C. Moulton of the Raffles Museum at Singapore.

This new species resembles somewhat in colour and size the *Diaphlebus*- group of the *Mecopodinae*, but is distinguished at once by the linear foramina, the strongly produced hind margin of the pronotum and the smaller femoral spines. The vertex is less sulcate than in *Subria sulcata*, the disc of pronotum pale as in *concolor*, *gracilis* and *truncata*. But from these species *S. moultonii* differs by its stouter size, the strongly constricted pronotum and the black bands at the sides of the disc.

Subria sulcata Redtenbacher.

1891. REDTENBACHER, Verh. zool.-bot. Ges. Wien, XLI, p. 435.
1893. BRUNNER v. W., Ann. Mus. Genova, (2), XIII, p. 180.
1906. KIRBY, Syn. Cat. Orth., II, p. 256.
1907. KARNY, Abh. zool.-bot. Ges. Wien, IV, 3, p. 57.
1912. KARNY, Wytsman, Genera Insectorum, fasc. 141, p. 10.

1 ♀ from Fort Canning, Singapore (10 Dec. 1913), and 1 ♀ from Gilstead Rd., Singapore (Aug. 1917; V. K. coll.).

This species was hitherto known from India, Burma, Cambodia, Sumatra, and Java. The indication "Alto Amazonas" is to be considered as very doubtful.

Genus **Oxylakis** Redtenbacher.

1891. REDTENBACHER, Verh. zool.-bot. Ges. Wien, XLI, p. 447.
1906. KIRBY, Syn. Cat. Orth., II, p. 258.
1907. KARNY, Abh. zool.-bot. Ges. Wien, IV, 3, p. 52, 63.
1912. KARNY, Wytsman, Genera Insectorum, fasc. 141, p. 18.

Oxylakis punctipennis Redtenbacher.

1891. REDTENBACHER, Verh. zool.-bot. Ges. Wien, XLI, p. 447.
1906. KIRBY, Syn. Cat. Orth., II, p. 258.
1907. KARNY, Abh. zool.-bot. Ges. Wien, IV, 3, p. 63.
1912. KARNY, Wytsman, Genera Insectorum, fasc. 141, p. 18.

1 ♀ from Bukit Timah, Singapore (30. VI. 1911), 1 ♀ from Kota Tinggi, Johore (Aug. 1917), and 1 ♀ from Cavanagh Rd., Singapore (4. March 1916; V. Knight coll.).

The species was hitherto known from Singapore and Borneo.

Genus **Odontoconus** Fritze & Carl.

1908. FRITZE & CARL, Mitt. Schweiz. Ent. Ges., XI, p. 301.
1912. KARNY, Wytsman, Genera Insectorum, fasc. 141, p. 35.

Odontoconus robustus n. sp. (Plate II, fig. 3).

♀. Size much stouter than in *O spinipes*. Brownish ferrugineous, unicolorous, but the tegmina with some small blackish spots.

Vertex distinctly longer than the first antennal joint, but shorter than in *O. spinipes*, acute at apex, with a blunt tubercle beneath and a sharp tooth on its upper surface, not divided from the frontal fastigium. Antennae ferrugineous, unicolorous, distinctly longer than the body. Eyes somewhat small, but globular, prominent. Front strongly impressed-punctured.

Pronotum broad, as seen from above, without longitudinal keels, the disc roundly turned into the lateral lobes. The whole surface of pronotum with strongly impressed points. The disc plain, with two soft transversal furrows, the fore margin rounded, hind margin truncate. No margin tinged with black. Lateral lobes longer than high, but shorter than in *O. spinipes*, with the anterior angle rounded off; the lower margin oblique, sinking posteriorly, with a short spine near the anterior angle; hind angle rounded off, humeral sinus scarcely perceptible.

Tegmina reaching across the basal half of ovipositor, narrow, broadest near base, rounded at apex; fore margin distinctly sinuate, hind margin nearly straight. Near the fore margin the space between the transversal veins black, the veins themselves ferrugineous; behind the radial veins some small blackish spots. Subcosta and radial vein distinctly separate in the basal half, nearly in contact in the apical half. Radial vein without a distinct sector. Wings pale greyish.

All femora strongly compressed, unarmed above. Fore femora beneath with 5-6 spines on both margins; the inner (anterior) genicular lobe acute, the outer one blunt. Middle femora with 7-8 spines on the outer, 3 in the basal half of the inner margin; the outer genicular lobe obtuse, the inner one acute. Hind femora with both margins spinose and the genicular lobes produced into a short spine. Fore and middle tibiae without spines above, strongly spined beneath on both margins. Foramina linear. Hind tibiae above and beneath on both margins spined.

Prosternum with two long, sharp spines. Mesosternal lobes produced into a short, erect spine. Metasternal lobes triangular, terminated in a blunt tubercle. Anal segment truncate, in the middle somewhat excavated. Cerci crossed, in the basal half very stout, in the apical half narrowed to a sharp spine. Ovipositor nearly as long as the hind femora, with both margins curved, acute at the tip. Subgenital plate triangular, emarginate at apex, with the lobes short, rounded.

♀. Length of body 37.5 mm., of pronotum 10.5 mm., of tegmina 32 mm., of hind femora 20 mm., of ovipositor 19.6 mm.

1 ♀ from Bukit Timah. Singapore (23 Aug. 1911).

There was one species only hitherto known of this genus, *O. spinipes* from Borneo, from which *O. robustus* easily may be distinguished by the characters given above.

Genus **Peracca** Griffini.

1897. GRIFFINI, Boll. Mus. Zool. Anat., XII, 306, p. 1.
1907. KARNY, Abh. zool.-bot. Ges. Wien, IV, 3, p. 55, 78.
1912. KARNY, Wytsman, Genera Insectorum, fasc. 141, p. 35.

Peracca conspicuithorax Griffini.

1897. GRIFFINI, Boll. Mus. Zool. Anat., XII, 306, p. 2.
1907. KARNY, Abh. zool.-bot. Ges. Wien, IV, 3, p. 78.
1912. KARNY, Wytsman, Genera Insectorum, fasc. 141, p. 36.

Of this very fine species, a single specimen only was hitherto known to science, a ♂ from Perak, in the collection of the Museum at Torino (Italy).

The Raffles Museum possesses 1 ♂ from Bukit Lantai, Sungei Ujong (Knight coll., July 1910).

Subfam. ***Copiphorinae.***

Genus **Eumegalodon** Brongniart.

1835. BRULLÉ, Hist. Nat. Ins., IX, p. 156 (*Megalodon*, nec SOWERBY).
1838. BURMEISTER, Handb. Ent., II, p. 724 (*Megalodon*, nec SOWERBY).
1839. SERVILLE, Hist. Nat. Ins., Orth., p. 536 (*Megalodon*, nec SOWERBY).
1840. BLANCHARD, Hist. Nat. Ins., III, p. 28 (*Megalodon*, nec SOWERBY).
1842. DE HAAN, Temminck, Verh., Orth., p. 210 (*Locusta Megalodon*).
1869. WALKER, Cat. Derm. Salt. Brit. Mus., II, p. 231 (*Lesina*), 334 (*Megalodon*).
1891. REDTENBACHER, Verh. zool.-bot. Ges. Wien, XLI, p. 356 (*Megalodon*).
1892. BRONGNIART, Bull. Soc. Ent. France, LX, p. clxxvi.
1892. BRONGNIART, N. Arch. Mus., (3), III, p. 279.
1906. KIRBY, Syn. Cat. Orth., II, p. 289 (*Lesina, Eumegalodon*).
1907. KARNY, Abh. zool.-bot. Ges. Wien, IV, 3, p. 1, 6.
1912. KARNY, Wytsman, Genera Insectorum, fasc. 139, p. 7.

Eumegalodon vaginatus n. sp.

♀. Brownish testaceous, with the tegmina and legs greyish brown.

Cheeks with a blunt wrinkle, running from the eyes to the outer margin of mandibles. Front laterally with a rough impressed punctation, reddish castaneous, in the middle part very finely punctured, shining black. At the lower margin (at clypeal suture) very little prominent, without a distinct tubercle. Clypeus and the upper part of labrum testaceous, mandibles castaneous, at the tip with the lower part of labrum shining blackish. Antennae brownish testaceous, with some darker, remote rings, at the base verdure beneath; the first antennal joint beneath blackish. Vertex tumescent at base, twice as long as the first antennal segment, sharply pointed, directed forwards; above testaceous, beneath black. Eyes globular, prominent, testaceous.

Prozona of pronotum with a sharp, upwards directed spine on each anterior angle, and after it a small and narrow projection, bearing two sharp spines of the same length as the projection, and three smaller ones; mesozona with a similar projection, ending in a long sharp spine, and before and behind it with two shorter ones. Disc between these projections with two dark spots and behind two smaller ones; metazona at the posterior margin on each side with three long, sharp spines (one of them directed upwards, one backwards, and one sidewards), and a little one before these. Lateral lobes with some black touches; anterior margin bearing three small spines, the third of which at the angle.

Tegmina short and narrow, widest near the apex, reaching not beyond the tip of abdomen, with some small dark spots, above testaceous at the base.

Fore femora beneath at the anterior margin with 4 strong spines, at the posterior unarmed; above with 5 at the anterior and 4 at the posterior margin, and one in the middle before the knees; the inner (anterior) genicular lobe spined, the outer one acute, but without a spine. Middle femora beneath at the anterior margin with 5, at the posterior without spines; above with 5 spines at the anterior margin, and one on the surface before the knee, but unarmed at the posterior margin; genicular lobes spined. Hind femora strongly spined beneath, with spined genicular lobes, above without spines.

Ovipositor longer than the whole body, curved upwards at base, and then nearly straight. Cerci ♀ short and heavy, acute at apex. Subgenital plate (♀) semicircularly emarginated, with the lobes produced into a short spine.

Length of body 51.5 mm., of pronotum 17 mm., of tegmina 31.5 mm., of hind femora 31 mm., of ovipositor 64 mm.

1 ♀ from Gunong Pulai, Johore, 2000'; Aug. 1905; presented by C. B. Kloss.

This species resembles *E. ensifer* in its whole appearance, the fore femora spined above, and the short tegmina, but the formation of front, the small lateral projections of pronotum, and the spined subgenital plate of ♀ agree better with the Bornean *E. blanchardi*. Therefore *vaginatus* cannot be confounded with one of these, especially since the ovipositor is distinctly longer than in any other species.

To the same species belongs perhaps also a very small ♂ larva (length of body 7 mm) from Gunong Kledang, Perak (2646'; Nov. 1916), with two pairs of very long spines and some tubercles at the disc of pronotum. General colour pale, reddish brown longitudinal stripes on each side of body reaching from the eyes to the end of abdomen. All legs pale above, blackish beneath; hind femora above also with two narrow dark stripes.

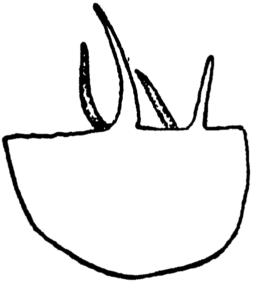


Fig. 34. Pronotum of a young *Eumegalodon* (?), seen from the right side. Enlarged.

Eumegalodon intermedius n. sp.

♂, ♀. Greyish brown. Cheeks without a distinct wrinkle. Front smooth, but not shining, of the same colour as the body; beneath at clypeal suture with a distinct tubercle, but less prominent than in *E. ensifer*. Mouth black, clypeus with the upper part of labrum and the base of mandibles testaceous. Antennae greyish testaceous, darker annulated. Vertex blunt, but little longer than the first antennal joint, curved upwards. Eyes globular, prominent.

Pronotum shaped as in *ensifer*; the lateral projections large, horizontally produced, with more and shorter spines than in *vaginatus*. Anterior and posterior margin spined as in *vaginatus*, but the upper spine behind less upwards directed than in the former species. Tegmina twice as long as abdomen, narrowed in the middle, broadly rounded in the apical half.

Genicular lobes as in *vaginatus*. Fore femora beneath at the anterior margin with 4 strong spines, at the posterior unarmed; above with 3 at the anterior and 3-4 at the posterior margin, but without a spine on the upper surface before the knee. Middle femora beneath at the anterior margin with 4, at the posterior without spines; above with only one spine near the middle of the anterior margin. Hind femora as in *vaginatus*.

Anal segment of ♂ roundly emarginated, with acute lobes. Cerci (♂) heavy, blunt. Subgenital plate of ♂ deeply cut out, with blunt styles. Ovipositor shorter than the body, but reaching distinctly beyond the tip of tegmina, somewhat directed upwards, nearly straight. Subgenital plate of ♀ semicircularly emarginated, with acute lobes.

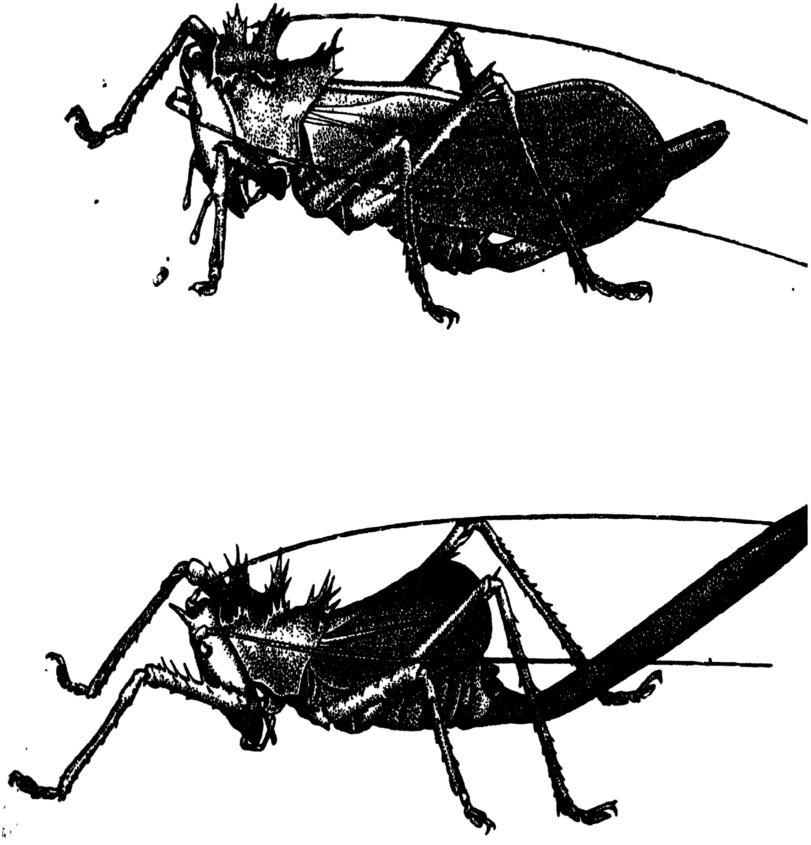


Fig. 35. ♀ of *Eumegalodon intermedius* (above) and *E. vaginatus* (beneath). Natural size. Del. Soedirman.

	♂	♀
Length of body	46 mm.	49 mm.
„ „ pronotum	23 „	21 „
„ „ tegmina	50 „	59 „
„ „ hind femora	24 „	30·5 „
„ „ ovipositor	———	44 „

1 ♂ from Sempam River, Pahang (1100′; 18. 1907; presented by G. Kruger), and 1 ♀ from Bukit Segana (April 1904; from Dr. Gimlette).

This species agrees in its whole appearance especially the large tegmina, with *E. blanchardi* from Borneo, but by above spined fore femora, the large projections of pronotum and the presence of frontal tubercle approaches *E. ensifer*. The shape of subgenital plate in ♀ is intermediate between the two mentioned species.

Eumegalodon was hitherto known only from the Sundaic Islands, but not yet from the Malay Peninsula. The two species here described from the Malay Peninsula are both new, and well distinguished by the above given characters from the insular forms *ensifer* and *blanchardi*. From *Lesina lutescens*, described by Walker as a Hetrodide (!), is a larval form only known, belonging after Kirby also to this genus, but not satisfactorily characterized, and must therefore be considered as a doubtful species. From the two others, my two new species may be distinguished by means of the following table:

Comparative Table of the Species of *Eumegalodon*.

	E. VAGINATUS.	ENSIFER,	INTERMEDIUS.	BLANCHARDI.
Vertex	long, sharply pointed, directed forwards	Shorter, more blunt, curved upwards		
Frontal tubercle at clypeal suture	scarcely perceptible	large, prominent	distinct, but little prominent	absent
Lateral projections of the disc of pronotum	small and narrow, with long spines	large, horizontally produced		small, directed upwards
Tegmina	reaching not beyond the tip of abdomen	1½ times as long as abdomen	twice as long as abdomen	2½ times as long as abdomen
Fore and middle femora above	Strongly spined			without spines
Ovipositor	longer than the whole body	Shorter than the body		
Lobes of subgenital plate of ♀	produced into a short spine	rounded	acute	produced into a sharp spine

Genus **Euconocephalus** Karny.

1907. KARNY, Abh. zool.-bot. Ges. Wien, IV, 3, p. 4, 39.
1912. KARNY, Wytsman, Genera Insectorum, fasc. 139, p. 33.

Euconocephalus indicus (Redtenbacher).

1842. DE HAAN, Temminck, Verh., Orth., p. 213 (*Locusta Conocephalus verrugera*, nec SERVILLE).
1891. REDTENBACHER, Verh. zool.-bot. Ges. Wien, XLI, p. 408 (*Conocephalus*).
1893. BRUNNER v. W., Ann. Mus. Genova, (2), XIII, p. 180 (*Conocephalus*).
1906. KIRBY, Syn. Cat. Orth., II, p. 249 (*Conocephaloides*).
1909. MAXWELL-LEFROY, Ind. Ins. Life, p. 96 (*Conocephalus*).
1912. KARNY, Wytsman, Genera Insectorum, fasc. 139, p. 34.
1920. KARNY, Zool.-Mededeel., V, 4, p. 162, 205.

1 ♂ from Singapore (1913); 1 ♀ from Bukit Kutu, Selangor (April 1915), and 2 ♀♀ without indication of locality.

Hitherto known from China, India, Himalaya, Burma, Tenasserim, Penang, Sumatra, Java, Borneo, and Australia.

Euconocephalus picteti (Redtenbacher).

1891. REDTENBACHER, Verh. zool.-bot. Ges. Wien, XLI, p. 410 (*Conocephalus*).
1906. KIRBY, Syn. Cat. Orth., II, p. 249 (*Conocephaloides*).
1912. KARNY, Wytsman, Genera Insectorum, fasc. 139, p. 34.

1 grey brown ♀ (hitherto unknown) from Long Mujan, Baram River, Sarawak (4. Oct. 1920; J. C. Moulton).

Ovipositor straight, shorter than the hind femora. Subgenital plate trapezodial, broadly emarginated at apex, with acute lobes.

Length of body 30.5 mm., of vertex 1.7 mm., of pronotum 7.5 mm., of tegmina 39.5 mm., of hind femora 23 mm., of ovipositor 20 mm.

Hitherto known from Perak, Malacca, and Sumatra.

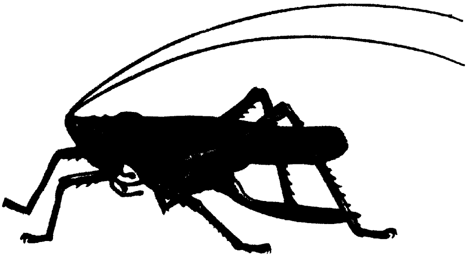
Euconocephalus mucro (DeHaan).

1842. DE HAAN, Temminck, Verh., Orth., p. 212 (*Locusta Conocephalus*).
1869. WALKER, Cat. Derm. Salt. Brit. Mus., II, p. 323 (*Conocephalus*).
1884. BOLIVAR, Viaje al Pacif., Ins., p. 88 (*Conocephalus sobrinus*).
1891. REDTENBACHER, Verh. zool.-bot. Ges. Wien, XLI, p. 413 (*Conocephalus sobrinus*).
1904. KRAUSZE, Ins. Börse, XXI (*Conocephalus sobrinus*).
1906. KIRBY, Syn. Cat. Orth., II, p. 249 (*Conocephaloides sobrinus*).
1909. REHN, Bull. Amer. Mus. Nat. Hist., N. Y., XXVI, 13, p. 204 (*Conocephalus sobrinus*).
1912. KARNY, Wytsman, Genera Insectorum, fasc. 139, p. 34 (*sobrinus*).
1915. BRUNER, Univ. Stud. Lincoln, XV, 2, p. 270 (*sobrinus*).
1920. KARNY, Zool. Mededeel., V, 4, p. 162, 205.

3 pale green specimens from Cavanagh Rd., Singapore (May 1910; V. Knight coll.; ♂); Long Loba, Baram River, Sarawak (Dec. 1920; J. C. Moulton; ♀), and Baram, Sarawak (15. Sept. 1920; J. C. Moulton; ♀).

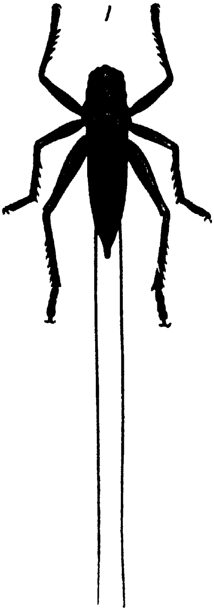
The specimen from Singapore has the vertex a very little more blunt at apex than the two Bornean ones, but agrees otherwise perfectly with them in all characters.

2



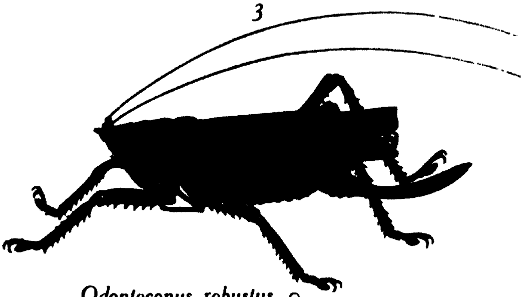
Subria moultoni ♀

1



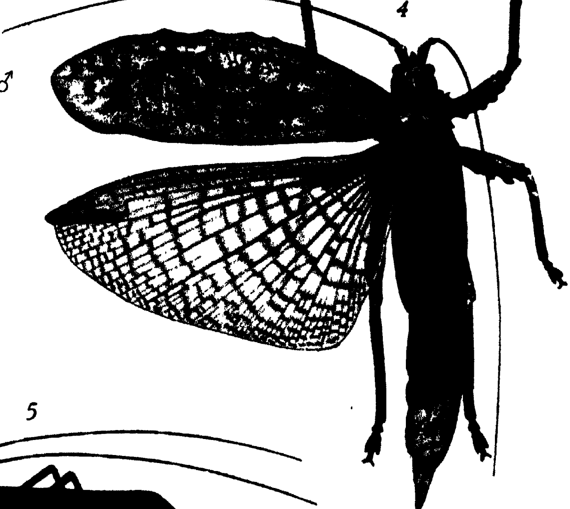
Gryllacris griffinii ♂

3



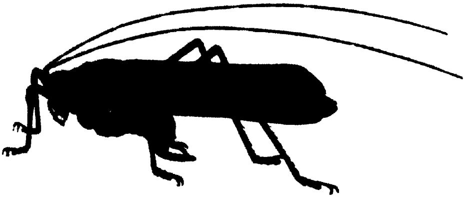
Odontoconus robustus ♀

4



Olcinia excisa ♀

5



Poecilopsyra octoseriata ♂

Distribution: Sumatra, Java, Borneo, Celebes, Lombok, Philippine Isl.

Euconocephalus pallidus (Redtenbacher).

1891. Redtenbacher, Verh. zool.-bot. Ges. Wien, XLI, p. 414 (*Conocephalus*).
1893. Brunner v. W., Ann. Mus. Genova, (2), XIII, p. 180 (*Conocephalus*).
1904. Krausze, Ins. Börse, XXI (*Conocephalus*).
1906. Kirby, Syn. Cat. Orth., II, p. 250 (*Conocephaloides*).
1909. Maxwell-Lefroy, Ind. Ins. Life, p. 96 (*Conocephalus*).
1912. Karny, Wytsman, Genera Insectorum, fasc. 139, p. 35.
1912. Karny, Abh. Ber. Zool. Mus. Dresden, XIV, 2, p. 4, 20.
1913. Bolivar, Asoc. Esp. Progr. Cienc., 4a, Ci. Nat., p. 8.
1915. Bruner, Univ. Stud. Lincoln, XV, 2, p. 269.
1915. Karny, Suppl. Ent., p. 74.
1921. Karny, Philipp. Journ. Sci., XVIII, 5, p. 607.

1 brown ♂ from Lio Matu, Baram River, Sarawak (20. Oct. 1920; J. C. Moulton), and 1 green ♀ from Gilstead Rd., Singapore (Febr. 1917; V. Knight.).

The ♂ agrees in all characters with the typical *pallidus*, but has somewhat shorter tegmina: length of body 33.5 mm., of tegmina 37 mm. of hind femora 20 mm.

Distribution: India, Ceylon, Burma, Tonkin, Penang, Singapore, Java, Borneo, Philippine Isl., Formosa, Tshushima, New Guinea.

Euconocephalus nasutus (Thunberg).

1798. Donovan, Ins. China, pl. 11, f. 2 (*Locusta acuminata*, nec Linnaeus).
1815. Thunberg, Mem. Acad. Petersb., XV, p. 273 (*Conocephalus*).
1862. Brunner v. W., Verh. zool.-bot. Ges. Wien, p. 93 (*Conocephalus acuminatus*).
1891. Redtenbacher, Verh. zool.-bot. Ges. Wien, XLI, p. 416 (*Conocephalus acuminatus*).
1903. Jacobson & Bianchi, Orth. Pseudoneur. Russ., p. 383 (*Conocephalus acuminatus*).
1906. Kirby, Syn. Cat. Orth., II, p. 250 (*Conocephaloides*).
1908. Matsumura & Shiraki, Journ. Coll. Agric., Sapporo, III, 1, p. 40 (*Conocephalus acuminatus*).
1912. Karny, Wytsman, Genera Insectorum, fasc. 139, p. 35 (*acuminatus*).

1 dark, grey green ♀ from Long Mujan, Baram River, Sarawak (4. Oct. 1920; J. C. Moulton), smaller than the typical form:

Length of body 32.5 mm., of tegmina 39.5 mm., of hind femora 23 mm., of ovipositor 21 mm.

Hitherto known from China, Japan, Siam, India, and Java.

EXPLANATION OF PLATE II.

(Del. Raden Soedirman Atmosaprodjo.)

Fig. 1. *Gryllacris griffinii* new spec., ♂.
Fig. 2. *Subria moultonii* new spec., ♀.
Fig. 3. *Odontoconus robustus* new spec., ♀.
Fig. 4. *Olcinia excisa* new spec., ♀.
Fig. 5. *Poecilopsyra octoseriata* (DeHaan), ♂.

Observations upon some coins obtained in Malaya and particularly from Trengganu, Kelantan and Southern Siam.

By Sir J. A. S. Bucknill, M.A.

President of the Numismatic Society of India.

In the course of my residence in the Malay Peninsula (1914-1920) I was constantly on the look-out for unusual coins; but I found that, with the exception of common currency—nearly always much worn--of neighbouring countries such as China, the Dutch East Indies, Sarawak, British North Borneo, Siam, French Indo-China, Japan and India, there was very little of interest obtainable. Occasionally one met with abraded V. O. C. Dutch Doits of the 18th century which were current in Malacca prior to the British occupation and in the early days in Penang and Singapore; rubbed one cent pieces of the 1810 issue of Penang and four-Kapang copper money of 1804 emanating from the British Settlement of Bencoolen (Fort Marlbro') in Sumatra were sometimes come across as were also a few of the commoner copper tokens issued between 1804 and 1836 by British Merchants in the Peninsula; but, in the main, the results were disappointing and I imagine there must have been a good many collectors over the ground before my time. However, in the present paper, I am attempting to give some account of my very amateurish numismatic investigations and a short description of the small number of rarer coins which came under my notice. My personal interest in the indigenous currency emanating from various Sultanates was stimulated by the discovery of specimens of the pewter coinage of Trengganu, Kelantan and Kedah in a small earth-caked lot of coins which I bought at a venture from a Chinese at Singapore in 1917.

In the autumn of 1918 I had to visit Trengganu on official business and stayed there for nearly three weeks: this State, owing to its inaccessibility except by sea, is the least known and most backward of those in British Malaya. Through the kindness of the Hon. Mr. J. L. Humphreys, the resident representative of the High Commissioner, I, then, and subsequently, received much information as to the currency of the locality and numerous specimens of coins found there; and as if to impress one with the importance of not attaching to the locality of a "find" any local origin I may mention that I obtained from this out-of-the-way spot such curious diversities as a Spanish dollar of Carolus III dated 1786 counterstamped with the head of our George III, an American Jackson "donkey" Cent of 1834, a Maria Theresa dollar of 1780, a brass Nuremberg rech-pfennig (calculating counter) of the 18th century and a six stiver silver piece of 1771 from the mint of Dordrecht in Holland.

From the Hon. Mr. H. W. Thomson, the then acting British Adviser in the State of Kelantan, I received several interesting pewter pieces issued by the Sultans of that country and by His Siamese Majesty's Lord Lieutenant of the Province of Patani His Excellency Phya Dejanujit I was sent quite a number of pewter coins coming from local mints at the towns of Patani, Yaring and Saiburi. I think that some of these issues may be, as yet, undescribed but unless one has easy access to Numismatic Periodicals (which here unfortunately I have not) it is very difficult to say so with confidence; and I am submitting these notes for publication more with the hope of gaining further than of giving novel information. I must express to many gentlemen, amongst whom I must mention Mr. J. P. Moquette and Mr. W. H. Valentine, my grateful thanks for much help in deciphering what are to me very difficult scripts. Where I am responsible for transcriptions I put them forward only as approximately accurate and the translations as free.

Trengganu Coinage and Gold Coins from Malaya.

This State lies on the Eastern seaboard of the Peninsula between latitude 4° 30′ and 5° 45′ North. Its area is estimated at 6,000 square miles and its population was in 1911 reported to be slightly over 150,000; with the exception of 10 Europeans, about 4,000 Chinese and 500 persons of other nationalities, the people were of Malay race and Moslem religion. It came under British protection in 1909 having been for a long period prior to that date under the somewhat nominal Suzerainty of Siam: but, owing to its lying off the regular trade routes, being shut in by high mountain ranges and almost unapproachable except by sea, its development has been very slow; and even when I visited the country in 1918 there were practically no roads and no railway or telegraph: it produces however quantities of tin and wolfram. I did not find, in such books as I was able to consult with the somewhat scanty numismatic literature at my disposal, very much written on the coinage of this country. I particularly regret my inability to consult the American Journal of Numismatics which, I understand, contains important contributions to the study of Malayan coinage.

Professor H. C. Millies in his admirable, posthumously published, work "Recherches sur les monnaies des Indigènes de L' Archipel Indien et de la Péninsule Malaie" (La Haye; Martinus Nijhoff. 1871) devotes barely three and a half out of 180 pages of his quarto volume to Trengganu: but, though he refers to several tin coins of which he figures ten and all of which he speculatively ascribes to this State, he is frankly quite dubious as to their true provenance: and I personally am somewhat doubtful if many or indeed any of them really emanated from Trengganu. An Austrian named Joseph Haas, who was at one time a Consul at Bangkok, published in 1880 at Shanghai an interesting article entitled "Siamese Coinage:" in writing of Trengganu, then under Siamese protection, he alleges that that State had issued Silver Quarter

Reals (a Real being presumably a Spanish dollar), Copper Kepings and Pewter "Pichis" or "Pitis." My own information has been chiefly derived from the Hon. Mr. J. L. Humphreys than whom no one has ever enjoyed better opportunities of obtaining an accurate knowledge of matters in Trengganu: he has lived for a number of years in the Capital often being the only European in the town and always in the closest touch with the Court and the best educated section of the community; whilst, in addition, he knows most intimately the language and its caligraphy. As a preface to my observations I think it may be convenient to give a tabulated list of the Sultans, the ruling line of which is believed to run from the seventeenth century: the dates are, so far as I could ascertain, substantially correct though it is believed that there were some short interregna.

Name of Sultan.	*Hegira date.*	*A.D.*	
Zenalabidin I.	? to 1135	? to 1722	
Mansur I.	1135-1208	1722-1793.	Millies, who could only ascertain the names of two of the Sultans, designates (p. 148), on apparently good authority, this Ruler as "Padoukah Srî Soultán Mansour Riáyat Schâh, fils due fue sultan Zeinou l-'ábidin."
Zenalabidin II.	1208-1223	1793-1808	Millies (p. 149) designates this ruler as "Padouka Srî Soultân Zeinou-l-'ábidin, fils du Sultan Mansour."
Ahmad I.	1223-1242	1808-1826	A.H. 1222: i.e. A.D. 1807-8, is the date borne by some of the tin coins which Millies speculatively ascribes to Trengganu.
Abdulrahman.	1242-1246	1826-1830	No issue of coinage.
Daud.	1246	1830	No issue of coinage.
Mansur II.	1246-1252	1830-1836	Mr. Humphreys states that (*a*) prior to the reign of Mansur II at least two types of Gold coins were known. (*b*) In Mansur III's reign one issue of pewter "pitis" took place: 960 = $1. Herr Haas writes that an issue of Copper Kepings occurred in 1835. British Merchants in Malaya issued a copper Keping inscribed "Trengganu" and dated A.H. 1251 (1835-6).

Muhammed.	1252-1255	1836-1839	No issue of coinage. The Malay writer Abdullah bin Abdul Kader states writing in 1838 that "pitis" in Trengganu ran 3840 to the dollar.
Omar.	1255-1293	1839-1876	1848-49 (AH. 1265) and 1854-55 (A.H. 1271). Issue of pewter "pitis." 960 of these coins said to equal one dollar.
Ahmad II.	1293-1299	1876-1881	No issue of coinage.
Zenalabidin III.	1299-1347	1881-1918	His Highness Sir Zeinal Abdin ibni Almerhum Ahmad K.C.M.G., Sultan. 1892-3 (A.H. 1310). Issue of pewter ten Keping pieces. 1907--8 (A.H. 1325). Issue of pewter one cent and half cent pieces.
A son of Zenalabidin III.	1337-1338	1918-1919	No issue of coinage. This youth only reigned a few months and then abdicated in favour of his younger brother.
Present ruler. another son of Zenalabidin III.	1338- ?	1919- ?	1920 (but coins are dated A.H. 1325). Issue of pewter. One cent piece from the A.H. 1325 die materially altered

Before referring in detail to the coinage it is perhaps desirable that I should give a few words of explanation as to the names by which the coins are known and as to their relative value.

The "pichi" or "piti" is essentially a pewter coin: it seems to have varied in value very much at different times just as it has in size.

Mr. Humphreys tells me that at one time no less than 3840 of these pitis were required to equal a dollar and Millies, at p. 147 of his work quoted above, writes:—

"Un savant Malai, qui a publié plusiers ouvrages dans sa "langue, Abdoullah, fils d'Abdou'l-Kader, fit en 1838 un voyage "de Singapore à Kalantan sur la côte orientale de la presqu'île. "Judicieux observateur il nota ce qu'il vit de plus remarquable "et pour plaire aux Anglais il publia le récit de son voyage en "malai à Singapore en 1838,[1] ayant surtout pour but d'expliquer "a ses compatriotes combien le Gouvernement juste et libéral des "Anglais est préférable à la tyrannie, l'injustice et la barbarie des "petits despotes malais. En parlant de l'état de Trĕngganou ou

---

[1] **Bahwa ini Kesah pu-layar-an Abdullah, ben Abdul-Kadir, Munshi-Deri Singapura Ka-Kalantan. Turkarang ulih-nya. Singapura. 1254-1838, in 8° (Publié aussi en caractères malais).**

"Trangganou sur la côte orientale, qui jadis acquit quelque re-
"nommée et joua, encore dans la siècle passé, un assez grand rôle
"dans les relations politiques de la péninsule, mais qui maintenant
"est tombé dans un profond avilissement, il fait aussi mention des
"monnais du pays. Il dit (p. 48) que la monnaie d'échange à
"Trangganou est de 3840 pitis d'étain pour une piastre."

I am not quite sure at what precise date the "pitis" bore such a low value but I imagine that it was in the early years of the nineteenth century when the dollar, piastre or rial referred to meant the Spanish dollar of commerce then current practically throughout Malaya and worth rather over five shillings. But apparently the later and now generally remembered table of values is as follows:—

30 Pitis = 1 Kĕnĕri (this was not a coin)
4 Kĕnĕri = 1 Kupang
4 Kupang = 1 Mas (*i.e.* Sa'mas)
2 Mas or
8 Kupang or } = 1 Rial (*i.e.* Dollar)
960 Pitis

The word "piti" is said by some to be derived from the Siamese, though Millies thinks it may have a Javanese origin. The word "Kupang" must not be confounded with the word "Keping" mentioned by Haas. The former (which means simply "a fourth") does not, I think, designate a coin at all; the latter is a word of Javanese origin and in Malay gives the idea of "a flat piece;" it has been extensively used in Malaya as the name of and on numerous kinds of money of which perhaps the best known are the bronze 1, 2, 3 and 4 Kapang pieces issued by the East India Company between 1783 and 1804, for its Settlement at Bencoolen (Fort Marlborough) in Sumatra and the many varieties of 1 and 2 Keping bronze tokens minted to the order of and issued between 1804 and 1840 by British Merchants trading in the Straits Settlements or used all over the Peninsula and Archipelago. The one Keping or Kapang piece was as a rule about the size of a Dutch doit and 400 were equivalent to a Spanish dollar.

Pewter pieces of ten Kepings were issued in Trengganu in 1892-3.

The word "Mas" simply means Gold in the Malay language.

Since the time when Trengganu came under British protection in 1909 and no doubt, but to a less extent, before that date, the currency of the Straits Settlements has been in force but side by side with the local pewter. All "pitis" however are now obsolete and only the Cent issues current. The pewter Cents issued by Zenalabidin III were called "White" cents from their colour; the Straits Bronze cents were similarly known as "Red" cents. Four of Zenalabidin's cents equalled in value three Straits' cents; as 100 Straits cents make one Straits dollar (now fixed at a value of 2 shillings 4 pence) so do 133⅓ of Zenalabidin III's pewter cents.

But owing to the then high price of tin the cents of the 1920 Trengganu issue have been placed on an equal footing with the Straits' cents. It will, one would imagine, be somewhat confusing to have two very similar pewter coins of the same denomination and face value (one cent) but actually of different worth synchronously current.

I will now endeavour to deal, so far as I can, with the coinage in detail.

A. *Gold: from Trengganu and other neighbouring places.*

Mr. Humphreys says (writing in 1919) that "Before Mansur II it is known that " there were two gold coins at least."

"(1). Mas sa-Kupang = 120 pitis (⅛ of a dollar)

"(2). Sa-'Mas = 480 pitis (= 4 Kupang); a half dollar."

He means by this that gold coins were made in Trengganu at one time. He adds " When the gold coins were made, gold was at $20-25 a tahil (or less); now it is $72."

He sent me three gold coins from Trengganu.

(1). An octagonal coin: dull yellow gold; size about 17.5 mm.: weight about 38.8 grains. On one side in Arabic are the words " Sultan Sulaiman." On the other side in Arabic the words " Khalifat-ul-moúminin " (*i.e.* Commander of the Faithful). This coin was obtained in Trengganu in March, 1920.

It appears, however, to be almost exactly similar to that figured by Millies (plate XXIII Fig. 242) and ascribed by him to Johore. Millies states that this ruler is " Sultan Soleiman Schâh " who was Sultan " Selon une opinion assez probable, de 1722 jusqu'en 1754 ou 1759." [Pl. III, fig. I].

(2). An octagonal coin; dull yellow gold; but somewhat clipped so that it appears almost circular. It looks rather as if it had been subjected to heat but is clear enough; size about 11.5 mm.: weight about 7.4 grains. On one side is again " Sultan Sulaiman " and on the other " Khalifat-ul-moúminin."

This coin corresponds almost exactly with Millies' plate XXIII Fig. 243 (Johore). In sending me this coin which was obtained in Trengganu in September, 1920, Mr. Humphreys speaks of it as called a " dinar." [Pl. III, fig. II].

(3) A circular coin; bright yellow gold: size about 9 mm. weight about 9.4 grains. On one side in Arabic is " Shah Alam; " on the other side " Malik-ul-Adil " (The Just King). This was obtained in Trengganu in June, 1920. [Pl. III, fig. III]. This coin is a puzzle. A large number of numismatists have seen it but are unable to say where it comes from. Personally I thought it might be from Atjeh (Acheen) in North Sumatra but Mr. J. P. Moquette of Weltevreden, Java, points out that " Malik-ul-Adil " does not occur on coins from that place, though " Sultan-al-Adil " is common on coins both from Atjeh and Borneo; but he cannot guess its provenance. Mr. Allan of the British Museum and Mr.

Howland of the American Numismatic Society were equally doubtful, though the latter suggests it belongs to some Malay Peninsula State. Mr. Valentine thinks it *does* come from Acheen as the name "Shah Alam" occurs on some of the gold coins of that locality in a longer legend "Paduka Shah Alam" (see Millies Plates XVI). Mr. J. Schulman of Amsterdam is, however, certain that it is *not* from Acheen, but thinks it emanated from some small South Indian State (possibly of Beejapur) owing to its type and characters. But Mr. Gravely of the Madras Museum is disposed to think it was issued by one of the Mughal Emperors. The mere finding of coins in a particular place, it need hardly be pointed out, is not of much value in fixing where they were minted but the fact is that we are still somewhat ignorant as to the coinage of the native States of Malaya; and very slender reasons have been at times assigned for attributing a specimen to a particular locality. An example of this slight groundwork may be seen in the case of those ten coins which Millies ascribes to Trengganu. He writes, (p. 145. I venture to give a translation of his French text), after discussing various specimens which he attributes to Kedah and Johore,—"We have not been able to discover any coins, which can with certainty be assigned to the other petty States of the central portion of the Malay Peninsula, but we must here mention a group of tin coins, of which, although of very simple appearance, the identification presents some difficulties. These pieces only, as a rule, show mere titles, either on the obverse, or spread over the two faces, sometimes with, but frequently without, a date." He then, in a paragraph too long for quotation here, indicates the features common to the group. These are the presence of the words (in Arabic script) "Le Roi de Juste" or "Le Calife des Croyants." (*i.e.* "Malik-ul-Adil and Khalifat-ul-Moúminin"), either alone or in combination. The reason why he thinks that these coins should be attributed to Trengganu is because the Malay gentleman Abdullah bin Abdul Kadir in his book to which I have referred above, says, in writing of the tin currency of that State "Elles pourtent pour empreinte les mots ملك العادل (i.e. Malik-al-Adil) et sont de la grandeur de nos dutes." Professor Millies therefore comes to the conclusion "Il me semble par cette notice très probable, que toutes les monnaies citées de cette classe appartiennent à l'état malai de Traugganou."

Millies is at any rate generally regarded as correct in attributing coins such as No. 1 and No. 2 described above to Johore but no Gold coins are known with certainty to have been issued from any other Peninsula State. So Nos. 1 and 2 may be eliminated from consideration as Trengganu coins.

It is, perhaps, convenient, as these were the only gold coins which were acquired by me personally, to refer here; in order to group them together, to the small collection of little gold coins which are in the Raffles Museum at Singapore and which, obtained in Malaya—some quite recently—seem to be perhaps of local origin. These coins have been kindly placed at my disposal for the purposes of this paper by Major J. C. Moulton, O. B. E., the Director of the Raffles Museum: casts of them have been examined by Mr. J. P. Moquette of Weltevreden, Java and I have been fortunate enough to be able to avail myself of his observations upon them.

They are eight in number:—

(A) An octagonal coin: rather bright yellow gold: size about 13 mm.: weight about 9.5 grains.

On one side in Arabic are the words "Sultan Abdul Sjah" and on the other "Chalifat al Muminin."

This coin was obtained at Klang, a town in the State of Selangor on the West coast of the Peninsula, and was presented in 1911 to the Raffles Museum by an Arab curio-dealer named Ismail with whom the Museum had frequent dealings.

Mr. Moquette writes of this coin that it is similar to the one figured by Millies in his work mentioned above as fig. 241 on Pl. XXIII: and gives the legends thus

سلطان عبدا لجليل شاه خليفة المومنين

Millies, who ascribes the coin to Johore, states (p. 143) that it would appear that there were three kings of that State named "Abdou-l-Djalil Shah:" the dates of their respective reigns seem somewhat uncertain: the 1st, however, appears to have been in power during part of the latter half of the 16th Century; the 2nd in the 17th Century and the 3rd at the beginning of the 18th Century: it is to the last of these Sultans to whom Millies attributes the coin figured by him.

The English writer Alexander Hamilton who visited Johore in 1703 speaks in his volume "A new account of the East-Indies. [London. 1739.] of the macie [mas] of Johor, a gold piece, of the value of about 3s 6d" [Pl. III, Fig. IV.]

(B) An octagonal coin: bright yellow gold: size about 12 mm.: weight about 9.8 grains.

This coin is similar to No. 1 (the preceding) but is somewhat smaller and, according to Mr. Moquette, from quite another die.

This coin was given to the Hon. Mr. W. G. Maxwell, C.M.G. (now Chief Secretary in the Federated Malay States) by the ex-Sultan of Rhio and presented by Mr. Maxwell to the Raffles Museum in 1919. It is interesting to notice (as showing how familiar with these kinds of coins the older Malay gentlemen were) that Mr. Maxwell writes that the ex-Sultan told him that the coin was "a Rhio coin." To students of the history of Malaya the close dynastic connection between Johore and Rhio is of course very familiar. [Pl. III. Fig. V.]

(C) A circular coin: dull yellow gold: diameter about 13.5 mm.: weight about 9.5 grains: a well executed coin.

There seems no doubt that this coin is of the State of Acheen in North Sumatra.

On one side in Arabic appears the legend "Sri Paduka Sultanah Inaiat Sjah" (*i.e.* the usual honorific titles) and on the other "Zakiat ad-dien berdawlat Sjah:" (Pious in religion prosperous ruler).

Mr. Moquette gives the inscription thus:—

فادك سلطانة عناية شاه
زاكية الدين بردولة شاه

The lady referred to was the 3rd queen who, according to Millies, (p. 93) reigned from about 1678 to 1688 and whose coins are perhaps not quite so rare as are those of her predecessors.

He figures a specimen very similar to this coin as fig. 139 Pl. XVI.

This coin was found, together with other coins, in an old pot, underground on an Estate known as Deli Toewa in Sumatra and was presented to the Raffles Museum by a Mr. B. J. Weissman in 1905. [Plate III, fig. VI.]

(D) A circular coin: rather bright yellow gold: diameter about 9.6 mm.: weight about 8.8 grains.

This coin is another puzzle.

On one side is the representation of some animal—rather roughly executed—which looks to me like an antelope; but has been, by others, designated a deer, a horse and even a lion with horns! On the other side is, apparently in Arabic "Malik ul-adil."

This coin was obtained at Kota Bharu, Kelantan by Mr. G. W. Thomson and presented to the Raffles Museum by Dr. John D. Gimlette in 1906. [Pl. III, fig. VII.]

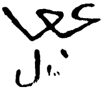
(E) A circular coin: very bright yellow gold: diameter about 10.3 mm.: weight about 9.4 grains.

This coin is very similar to (D).

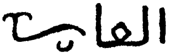
It was obtained in Kelantan which is of course close to the Siamese Province of Patani. [Pl. III, fig. VIII.]

Writing of these two coins Mr. Moquette says "These coins with a deer (?) have on the other side ملك العادل malik ul adil) and it is very curious that similar coins were found at Jaring near Patani. These coins were described in the Journal of the Royal Asiatic Society for Great Britain and Ireland, 1903. Art. XIII, pp. 339-343 by Lieutenant Colonel Gerini with remarks by Dr. Codrington."

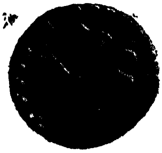
Dr. Codrington, I may mention, regarded the two coins upon which he comments (which were found in the grounds of a Siamese Buddhist Monastery) as imitations of some Southern Indian fanam (the Indian coin) and thought that the animal was intended to represent a maneless lion: he suggested that they were minted in Acheen and were coined in the reign of the ninth ruler Salah-al Din (A.H. 917-946 *i.e.* A.D. 1511-1539.)

Writing of (E) Mr. Moquette says "This is the same coin as described by Gerini and Codrington only struck from another die and I am sure that (D) is from the same origin. Dr. Codrington's reading العادل is perfect but, as you can see on this coin in combination with the representation by Gerini, the circle of dots is complete (on your coin above and on Gerini's beneath) so it is impossible to read anything else *i.e.* Sultan or Malik. The meaning is clear but the style of writing  very ugly. What the animal may be I cannot guess but I never saw (on a coin) a lion with horns. I am certain, however, that this coin is not Achinese. I do not see the sun or moon. Perhaps the head and tail of the beast (whatever it may be) are hiding an inscription but this is mere guess work and I can see nothing clearly."

Of (D) he writes "I read (with hesitation) ! ! ? ملك Malik" and with certainty العادل "ul adil" written thus



The subjoined photographic reproductions show one of Gerini's specimens and are useful for the purposes of comparison:—



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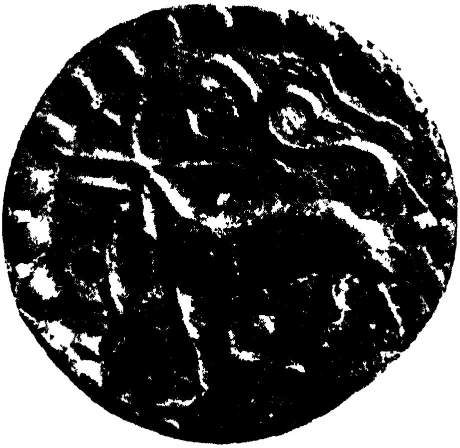

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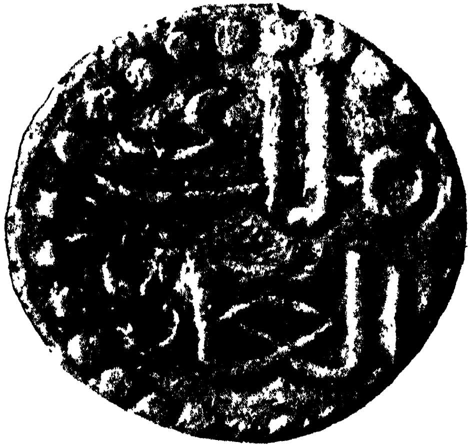


× 6

× 2

(F) A circular coin: fairly bright yellow gold: diameter about 10 mm.: weight about 9.3 grains.

Found in Kelantan. [Pl. III, fig. IX.]

(G) A circular coin: fairly bright yellow gold: diameter about 11.2 mm.: weight about 9 grains.

Found in Kelantan. [Pl. III, fig. X.]

These two coins are also somewhat of an enigma. They are no doubt from the same source though from different dies.

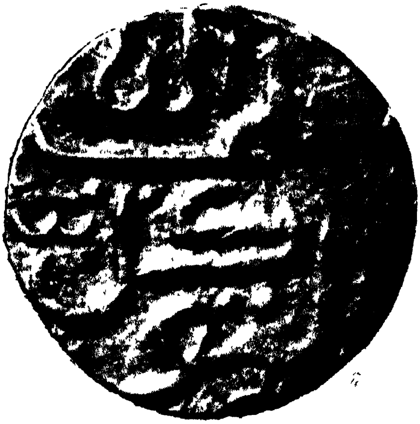
On both, on one side, appears a legend which Mr. Moquette gives as المتوكل علي الله (*i.e.* Al mutuwakkil Ali allah). Of the other side Mr. Moquette writes. "The inscriptions are the same but I do not know what to make of them. I see pretty clearly,

ساه
المعتر
اطلوس

but query further."

The subjoined photographic reproductions show one of Gerini's specimens and are useful for the purposes of comparison:—

× 2



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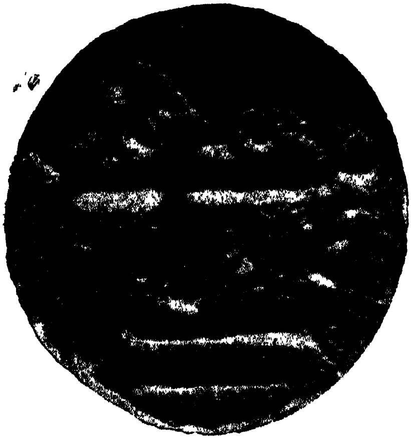


× 6

× 2

"It is possible one must read الحيطب but I cannot guess the meaning of the combination. These coins might, possibly, have been imported from Egypt as there were, I believe, three Abbasid Khalifs called Almutu Wakkil Ali Allah but it is also quite possible that one of the Malayan Sultans bore this honorary title which would be a fine one for a new believer."

(H) A circular coin: fairly bright yellow gold: diameter about 10 mm.: weight about 8.5 grains.

This coin was obtained at Kota Bharu, Kelantan by Mr. G. W. Thomson and presented to the Raffles Museum in 1906 by Dr. John D. Gimlette. According to Mr. Thomson this coin and (D) are known in Kelantan as "Mas dinar;" a designation which however would no doubt be applied to any small gold coin in Malaya.

This coin is worn or has been touched by fire and the characters were to us undecipherable. [Pl. III, fig. XI.]

I am afraid the above records do not advance knowledge materially. It is interesting to notice that of all the last ten coins each weighs about one quarter of the large first piece. The Malays seem quite familiar with this class of small gold coin: but as showing of how little value in determining origin the mere discovery of pieces is I may mention that Sir Lionel Woodward (Chief Judicial Commissioner of the Federated Malay States) obtained for me in Deli, Sumatra three minute gold coins which were popularly supposed to be of local emanation but which turned out to be comparatively recent emissions from Travancore in Southern India.

B. *Silver.*

I could find nothing more than what Haas writes (vide suprâ) as to the Silver Quarter Real said to have been issued in Trengganu.

C. *Copper.*

Possibly the copper Kepings stâted by Haas to have been issued in Trengganu in 1835 is the Bronze One Keping piece which is described as No. 17 by Lt. Colonel Leslie Ellis in his article, entitled "British Copper Tokens of the Straits Settlements and Malay Archipelago." (Numismatic Chronicle. Series III, Volume XV, p. 147) and the obverse of which is figured by him as Fig. 7 on Plate VI.

Owing to the dearth of small British money in Malaya at the end of the eighteenth and the beginning of the nineteenth centuries Merchants issued large numbers of their own tokens for use as currency. Ellis describes about forty varieties. They often bore the names of States such as Perak, Selangor, Atcheen, Dilli, Siak, etc., and generally speaking seem to have been minted in Birmingham and issued between 1804 and 1835.

A specimen (a proof in bronze) in my collection, particularly designed for Trengganu, has in Malay on the Obverse "Negri Trengganu" (Country Trengganu) and on the Reverse "Satu Keping, ١٢٥١" (One Keping 1251 = 1835). It is a circular coin; diameter 21 mm. Plain edge. Struck, no doubt, at the Soho Mint, Birmingham. [Pl. III, fig. XII.]

I could not find any other sort of copper coin connected with Trengganu.

D. *Tin.*

The Malay Peninsula is very rich in tin and to that metal resort was naturally made for coinage. Mixed with a varying amount of lead some are very plastic, whilst others are hard. The former quickly wear and blacken in circulation and their inscriptions soon become defaced.

I will try to deal with these pewter issues in chronological sequence.

A. Millies, as I have mentioned above, figures ten tin coins which he speculatively ascribes to Trengganu. On some of these is a date A.H. 1222 (*i.e.* 1807-8). I have not seen any of these dated coins but he figures (Plate XXIII, Fig. 250) another coin, examples similar to which I have received from Mr. Humphreys who tells me that they are locally assumed to belong to Trengganu and ran 3840 to the dollar. What date to give them it is hard to say; possibly they are the "pitis d'étain" mentioned by Abdullah. But I am inclined to think they are either of the late 18th century when the country was at its zenith or do not belong to Trengganu at all as their appearance and workmanship are certainly better than and quite unlike any other coins emanating from the State.

The following is a short description of the two types which I have received.

1. A circular coin of hard pewter (tin with a little lead). Size 26.6 mm. Plain edge. Clearly and deeply struck: probably a cast coin. Obtained in 1919 in Trengganu by Mr. J. L. Humphreys. Vide Millies. Plate XXIII. Fig. 250; and Netscher and van der Chijs in "De Munten van Nederlandsch Indie" (Batavia, Lange & Co., 1863). Plate XXVI, Fig. 245 where the authors figure a similar coin and describe it as attributable to the States of Sambas and Mampawa situated on the western coast of Borneo on grounds which Professor Millies is at some pains to show are not at all conclusive. Superficially they look as if they were heavily coated with copper and are of a deep brown colour quite unlike any later Trengganu "Pitis" all of which are of softer metal contents and of typical silvery-white pewter coloration; but underneath this deep brown coating (or patination ?) the bright metallic tin is easily observable.

Obv. In Arabic script in two lines "Malik-al-Adil."

Rev. Plain. [Pl. IV. fig. XIII.]

2.* A similar coin but considerably smaller being only 23.6 mm. in diameter. Obtained in Trengganu by Mr. J. L. Humphreys in 1920. Although it has the same inscription it is from an entirely different die or mould; the letters are not of the same shape or size and there is a ring of strokes close to the edge. Neither Millies' nor Netscher and Van der Chijs' figures are at all similar. [Pl. IV. fig. XIV.]

I think the larger coin belongs perhaps to a later and more decadent date than the smaller which is generally better turned out.

B. Of the issue mentioned by Mr. Humphreys as having taken place in Mansur II's reign I have not received or seen any specimens.

C. One is on firmer ground when one comes to the next known issue namely that made in the reign of Sultan Omar (1839-76) as one has in this case both place-name and date. I have several of these. Their description may be given thus:—

3. A circular coin of very thin pewter; punched with a male die with a faint impression; issued in the reign of Sultan Omar (1839-76). Obtained in 1919 in Trengganu by Mr. J. L. Humphreys. Size 23 mm.

Obv. In Arabic script "Thuriba Trengganu 1265." (*i.e.* Struck Trengganu 1265). The Hegira date 1265 equals A.D. 1848-49.

Rev. Plain. [Pl. IV, fig. XV.]

But I have two other specimens of similar character but on which the date is different. These are with Mr. W. H. Valentine at present. I describe them thus:—

4. A circular coin similar to No. 3 and with the same provenance.

Obv. In Arabic script "Thuriba Trengganu 1271." (*i.e.* Struck Trengganu 1271). The Hegira date 1271 equals A.D. 1854-5.

Rev. Plain.

So it would appear that in Omar's reign there were two issues of "Pitis" but differing only in date. I have no specimen with me to figure.

D. The next issues, with which I am acquainted, are those of the Sultan Zenalabidin III, a grave and dignified gentleman whose acquaintance I had the honour of making.

The first may be described thus:—

5. A circular coin of soft pewter of moderate thickness: stamped in a die on both sides:—Issued in the reign of Sultan Zenalabidin III. Various specimens obtained in Singapore and Trengganu. Dated A.H. 1310. (= A.D. 1892-3). Size from 27.5 to 28.6 mm. Very roughly struck; plain edge.

Obv. A wreath of leaves surrounding the inscription in Arabic character—“ Sapuloh keping”—(*i.e.* Malay for “ Ten Kepings ”) and the figures “ 1* ” (i.e. 10). A circle of strokes close to the edge.

Rev. A circle of strokes close to the edge; then a plain line circle and within in Arabic character “ Sarf Trengganu, ٠١٣١’ (= Currency, Trengganu 1310, *i.e.* 1892-3).

This 1892 Trengganu issue of a piece of 10 Kepings must however be regarded as the issue of a “ Cent ” piece though as a matter of fact they bore a local currency ratio to the Straits Copper cent of 4 to 3. I regret I have now no specimen with me to figure.

Next in order comes an issue of regular One Cent and Half cent pieces which may be thus described.

6. A circular coin of soft pewter of moderate thickness: issued in the reign of Sultan Zenalabidin III. Struck in a die on both sides. Dated A.H. 1325 (= A.D. 1907-8). Numerous specimens from Trengganu. Size 28.3 mm. Good workmanship; milled edge.

Obv. The figure “ 1 ” within an interior beaded circle; outside, and within another beaded circle close to the edge, a wreath of leaves.

Rev. Within an interior beaded circle in Arabic character—“ Kerajaän Trengganu Sanah 1325 ” (*i.e.* Malay for “ State Trengganu, Year 1325,” *i.e.* 1907-8.). Outside, and within another beaded circle in Arabic character “ S. Z. A.” (the initial letters of Sultan Zenal Abidin) each letter separated from the other by a six-pointed star. [Pl. III, fig. XVI.]

7. A coin similar in all respects but smaller and on the Obverse the figures “ ½ ” replace the figure “ 1.” I have no specimen with me to figure.

E. Lastly comes the issue in 1920 of one cent pieces in the time of the present young Sultan. I have described these fully in a previous article pubished in this Journal March, 1922).

I must not leave Trengganu without a short mention of the gambling Tokens or counters. As was usual, in most of the Malay States the right of keeping a gambling establishment where the playing of games of chance such as Fan-Tan or Chap-Jee-Kee could alone *lawfully* be carried on was “ farmed ” out by the Government to the person who would bid the highest sum for the privilege. So far as I know the lessee was generally a Chinaman. This system has been gradually eliminated in the States under British Protection but existed until three or four years ago in Johore and was only abolished in Trengganu in 1919.

For the convenience of his patrons the successful lessee in Trengganu sold counters for the purpose of making stakes, which were redeemable for cash on leaving the establishment. I have received several of these tokens. They are locally known as "Jokoh," "Jongkol," "Jokong" or "Jongkong," (a word probably of Malay origin of which the true form may be "Jongkong" meaning a small hollowed-out boat and perhaps having reference to the hole in the centre of the coin and in Trengganu means any tin or pewter coin allowed to be produced by a private individual).

They are of two kinds.

A. A circular pewter coin with a square hole in the centre; diameter 33 mm. Plain edge.

Obv. Within three circles of dotted lines in Chinese "Hiap Chin Peng Kee." This means "United Prosperity Peng's Chop." "Peng" is part of the farmer's name; and "Chop" means "Firm" or "Business."

It is interesting to note that to prevent forgery a piece of thin copper wire about 20 mm. long is stamped into the face of thd coin. This would make imitation a somewhat laborious task.

Rev. Within two circles of dotted lines in Malay "Ini Bun Peng punya." This means "This is Bun Peng's;" "Bun Peng" being tht Farmer's name. [Pl. III, fig. XVII.]

B. A somewhat similar coin but about 32 mm. in diameter and probably a later issue than A.

Obv. Within a single circle of small triangles and in larger script than in A, the same inscription; each word separated by a line of small diamonds. The anti-forgery wire is present.

Rev. Within a single circle of small triangles in Malay "Bun Peng;" in place of the two other Malay words as in A appear two Chinese conventional representations of a shrimp; each word and figure is separated by a line of small diamonds. I am told that the "shrimp" is an emblem of good fortune. [Pl. III, fig. XVIII.]

When in the district of Trengganu known as Kemamam I found, at a place called Chukai, that important Chinese Merchants issued their own paper currency in private notes of excellent appearance which I was informed had a large though territorially limited circulation.

Kelantan.

Kelantan is another of those Malay states which came like Trengganu under British Protection in 1909; it also lies on the Eastern littoral between 4° 38′ and 6° 15′ north latitude. Its area is about 5,800 square miles. It is a far more progressive State than Trengganu; its population in 1911 was estimated at about 290,000 of whom some 270,000 were Malays, 10,000 Chinese, 5,000 Siamese and rather over 100 Europeans. I do not know of much which has been published about its coinage. Millies has nothing to say of its coins though he mentions the State by name. I made a few remarks about Kelantan in connection with gold coins received from Trengganu, but I do not know that it is certain that any coinage was issued by Kelantan except Pewter "pitis;" of these however I have seen several issues. I believe that at any rate the latter of these ran 480 to the dollar. I give a short description.

A. First issue. 1882-3.

A pewter coin with a circular hole in the centre. Size 28.3 mm. Plain edge. I obtained this in Singapore in 1917. On one side in Arabic script is "Thuriba fi jamaddil akhir 1300" (*i.e.* "Struck in the month of Jamadil Akhir 1300"). The Hegira date ١٣٠٠ = 1882-3.

On the other side is, in Arabic Script "Dama sama mulka dowlat Kelantan" (*i.e.* "Permanent be the prosperity of the Country Kelantan"). This coin is now with Mr. W. H. Valentine and I regret that I have with me no specimen to figure. One was sold at Lord Grantley's sale in Amsterdam in 1921 as part of Lot 1509.

B. Second issue. 1895-6.

A pewter coin with a circular hole in the centre. Diameter about 29 mm. Plain edge. Inscriptions in Arabic script on both sides. These read on one side "Thuriba fi jamadil akhir sanat 13" (which I take to mean "Struck in the month of Jamadil Akhir 1313 A.H." = 1895-6 A.D.) and on the other "Dowlat Kelantan dama sama mulki ki."

It is a well made clearly stamped coin. I had two specimens which I obtained in Singapore in 1919. [Pl. IV, fig. XIX.]

C. Third issue. 1896-7.

I have not seen a coin of this issue but noticed one for sale in Schulman's LXVIIIth catalogue. It is there thus described:—"Kelantan. Piti teboh. A.H. 1314. Legende arabe des deux côtés autour d'un trou rond, en caractères incuses, et le nom du mois Djamada 'l-awal. A. J. N. (American Journal of Numismatics) 1904, p. V, n. 40. Etain, 30 m.m. Beau et rare. 5 florins." A specimen was also sold at Lord Grantley's sale as part of Lot 1509 in Amsterdam in 1921: and at Mr. Axel Lagerman's sale at the same place in 1922. Lot 1462 (which sold for 20 florins = £1-13-4) is figured and thus described by Mr. J. Schulman:

"Kelantan. Etat independant. Une branche de 13 Pitis (monnaies d'étain) avec trou circulaire et une inscription malaie en beaux caractères, avec 'Malekah beland· jan kirdjan Kalantan, ect.' et au revers 'Sounih fi Djamada 'l awwal senet 1314' = A.D. 1897. H. W. A. J. N. fig. 40. Longueur 250 mm."

"La branche décrite se trouve dans l'état où sont ces monnaies assortir du moule, donnant une idée de quelle manière les monnaies de Malacca sont fabriquées."

D. 4th issue. 1899-1900.

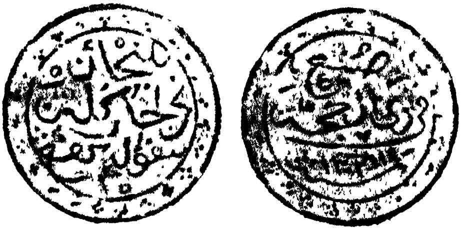
A pewter coin with a round hole in the centre. Size 30 mm. Plain edge. On one side in Arabic script. "Saniah fi jamadil awal 1317" (*i.e.* Impressed in the month of Jamadil Awal 1317). The Hegira date = 1899-1900. On the other side in Arabic script "Mulka belanjan kerajaan Kelantan" (i.e. Currency State Kelantan (may it be) prosperous). I obtained this coin in 1917 in Singapore. It is now with Mr. W. H. Valentine. I regret I have no specimen with me to figure.

E. 5th issue. 1903-4.

A pewter coin with a round hole in the centre. Size about 21.5 mm. Plain edge. On one side in Arabic script is "Thuriba fi Zulhijjah sanat 1321" (*i.e.* Struck in the month of Zulhijjah year 1321). The Hegira date = 1903-4. On the other side is in Arabic script "Belanjan kerajaan Kelantan" (= Currency State Kelantan). I have two specimens of this coin kindly sent to me in 1920 by the Hon. Mr. H. W. Thomson then Acting British Adviser in the State. [Pl. IV, fig. XX.]

F. 6th issue. 1903.

A pewter coin *without* a hole in the centre. Size about 29.5 mm. Plain edge. On one side in Arabic script is "Belanjan kerajaan Kelantan sapolah (10) kapang" (*i.e.* Currency State Kelantan Ten Kepangs). On the other side is "Soenga (? Saniah) Fi Zial Hajjat Sanat 1321." The Hejira date is 1903. Mr. W. H. Valentine showed me a specimen of this coin in the autumn of this year (1922) and I give the transcription of the legend as he reads it. I expect that the latter of the two inscriptions probably means "Struck in the month of Zulhijjah year 1321." I attach a reproduction of this coin taken from a rubbing.



In 1919 the ruling Sultan was His Highness Sir Mohamed IV bin Almerhum Sultan Mohammed, K.C.M.G.

Patani.

Amongst the earth-caked coins which I purchased in Singapore in 1918 was one, which when cleaned up, gave much trouble in determination though it was fairly legible. It was a pewter coin with a legend in Arabic and Mr. Valentine was inclined to think it belonged to Kedah. The inscription seemed to read "Al dowlah ul Rhairiah fi balad Sui 1307" but the word "Sui" or "Shui" or "Sinui" was doubtful. At one time Mr. Valentine read the word as "Sunyi" (*i.e.* "tranquil;" the common Malay word for "quiet"). But "Dar-ul-Aman" (Country of Peace) is the official honorific title of Kedah; as "Dar-ul-Salam" is an honorific name for Acheen, "Dar-ul-Redzwan" for Perak and "Dar-ul-Ihsan" for Selangor. Indeed on coins of Kedah dated A.H. 1224 (*i.e.* 1808-9) one sees "Dar al aman balad Kedah." On another similar pewter coin in Mr. Valentine's possession is an inscription "Malik al adl fi balad al Siwi (or Shiwi) 1309." In order to ascertain where the coin really did come from I laboriously sent it to a large number of people.

Mr. J. Schulman of Amsterdam wrote of a similar coin (which he sent me on approval) on 28.10.19.—"Thank you for your information on account of the "Sinui" coin. I don't know where "Sinui" is situated but my specimen reads clearly "Fi balat el-Sinui;" this *may* be an honorific title of Kedah."

In January, 1920 I sent the coin to Mr. W. H. Dinsmore, the Judge at Kedah, who showed it to many notables of that State; they were unanimous that it was not a Kedah issue.

In February, 1920 I sent it to the Hon. Mr. J. L. Humphreys the British Agent at Trengganu who is a most accomplished Malay scholar. He wrote in reply in March—"I have shown the coin to the only persons whom I thought likely to be able to explain it. None of them can. But they all consider it to be a "Barat" coin. The word "Barat" (as you probably know) means as used here, "Western" and as used in Trengganu, which is on the eastern sea-board of the Malay Peninsula, refers to Kelantan or some Malay-Siamese State."

In March, 1920 I sent it to the Hon. Mr. W. H. Thomson the British Adviser in Kelantan. He replied stating that he had first exhibited it at the State Council where it was declared not to have emanated from Kelantan; secondly to various persons of learning, one of whom, a Haji, stated that it came from the Siamese province of "SAI" which adjoins Kelantan on the north sea-board: he was, as it turns out, not far wrong.

At the end of March, 1920 I sent it to Mr. J. P. Moquette of Weltevreden, Java. He was unable to say definitely what it was but thought it read "From the State (country) of SAI." He said that he had many coins of this kind but all were more or less illegible.

In May, 1920 I sent it to the Siamese Lord Lieutenant of the Province of Patani. His Excellency replied to me very courteously in June in the following terms—"I beg to say that this coin, an issue of Changvad (District) Saiburi, is quite obsolete and is out of use since some years, say in 1909. I have the pleasure to return the old coin you sent and a few more of similar type which I found in this Province. They are marked in separate little parcels in the name of various places where they were originated."

His Excellency's parcel of coins was very interesting and it is of these which I propose to try to give a short description.

Millies has little to say about the coins of Patani but describes one pewter specimen (Plate XXIII, Fig. 245) which bears on one side an Arabic inscription in the Malay language meaning "Ceci est un pitis courant du radja de Patani" and on the other a similar legend "Le calife des croyants l'an 1261 (*i.e.* 1845-6)."

In Schulman's LXVIIIth Catalogue another Patani pewter piece is advertised for sale thus:—

"Patani. Piti teboh. A.H. 1309 avec "Zarb fi belad el-
"Pathani. Rev. Ini pitis belandjah dar el-(Mankarain ?)
"Pathani. Plomb. Inédit, t.b.c. 2 florins."

My coins from His Excellency emanated apparently from three mints: one at Patani itself, which is inland; another at a little town called now, and marked on the official railway map as. Yaring which is on the coast about 30 miles north of the third mint which was also situated on the coast about 130 miles south of Singora at a small port called Saiburi on the mouth of a river. I should not have been surprised to learn that there were other places of similar character where pewter coins of this type were produced: but His Excellency in a letter to me dated May 28th 1921 informs me that "as far as can be ascertained pewter coins were made "only at Patani, Yaring and Saiburi: they were not struck by "Government authority and are not allowed currency to-day. It "is something like 20 years ago when these pewter coins were last "used. The value of the coins was roughly:—

"Patani: 800 to $1 (Straits Settlements).
"Yaring: 500 ,, ,, ,,
"Saiburi: 500 ,, ,, ,,

"It is unlikely that the coins would be used in any part other than "that of the immediate vicinity of origin; for even at the present "time a good deal of trade between the peoples near the sea and "those inland is carried on by barter." I will deal with the places separately.

Patani.

A. *1st issue.* (A.H. 1261, *i.e.* A.D. 1845-6).

This is the coin mentioned by Millies (see above).

B. *2nd issue.* (A.H. 1297, *i.e.* A.D. 1880-1).

Two circular coins sent me by the Lord Lieutenant of Patani in June, 1920. Pewter with a large central hole. Size 28 mm. On one side in Arabic "Al Sultan al Fatani sanah 1297 (*i.e.* The Sultan of Patani, year 1297). On the other side in Arabic "Wa Khalifat al-Karam." (*i.e.* Generous Ruler). Schulman was cataloguing this coin for about 2*s* 6*d* a few years ago. [Pl. IV, fig. XXI.] The central hole is, I need hardly say, a common feature in Far Eastern currency of low value: they can thus be strung and carried easily in bulk, on a cord.

C. 3rd issue. (A.H. 1301, i.e. A.D. 1883-4).

Three circular coins sent me by the Lord Lieutenant of Patani in June, 1920. Pewter with a circular central hole. Size .22 mm. On one side in Arabic "Al-mutassarif fi bilad al Fatani sanah 1301" (*i.e.* Currency of the country of Patani year 1301). On the other side in Arabic "Thuriba fi harat al dowlah uzza Nasaruh" (*i.e.* Struck in the State May God prosper it). [Pl. IV, fig. XXII.]

D. 4th issue. (A.H. 1305, *i.e.* A.D. 1887-8).

Three circular coins sent me by the Lord Lieutenant of Patani in June, 1920. Pewter; with a circular hole in the centre. Size 25 mm. On one side in Arabic "Al-murassarif fi balad al Fatani sanah 1305" (*i.e.* Currency of the country of Patani year 1305). On the other side in Arabic script and the Malay language "Ini pitis belanja di dalam Negri Patani" (*i.e.* "This piti is currency within the Country of Patani"). [Pl. IV, fig. XXIII.]

E. 5th issue. (A.H. 1309, *i.e.* A.D. 1891-2).

This is the coin mentioned by Schulman in his catalogue (vide above).

Yaring.

A. Millies (p. 153) refers to a tin coin figured by Netscher and Van der Chijs (Plate XXIV, Fig. 220) and ascribed by them to Djambi which reads "Ini pitis harla (?) sanat 1261;" the word which the Dutch authors were unable to decipher Millies thinks must be "Jarung" or "Djaring." The name as now placed on the Siamese official Railway Map which I consulted is written "Yaring" and the Lord Lieutenant himself so spells it; but I have seen it spelt "Jerim," "Jeering," "Djering." 1261. A.H. = 1845-6.

B. Two circular coins sent me by the Lord Lieutenant of Patani in June, 1920. Pewter; with a circular hole in the centre. Size 28 mm.

On one side is an inscription in Arabic character which is rather difficult to decipher but seems to read—"Ini pitis balad Jariz sanah 1293," (*i.e.* "This is a piti of the country of Jariz, year 1293)." [*i.e.* A.D. 1876-7.]

The other side is blank; and so I gather was that of the one mentioned by Netscher and Van der Chijs or otherwise they would have figured both sides.

I am rather doubtful as to the last figure of the date. [Pl. IV, fig. XXIV.]

C. Three circular coins sent me by the Lord Lieutenant of Patani in July, 1920. Pewter; with a circular hole in the centre. Size 25.5 mm.

On one side is an inscription in Arabic character which seems to read "Haza al dowan al raij al maadani fi balad al Bahrein (or Yahrein) 1312" (*i.e.* This metal fraction is currency of the towns of the country of Yahrein 1312). *i.e.* 1894-5.

The other side is blank. [Pl. IV, fig. XXV.]

Saiburi.

Millies (p. 154) mentions "Cherai," "Thrai," "Tjerai," "Saj," "Chrai Buri" (*i.e.* "the Country of Chrai"). These all mean the place now marked on the railway map as "Saiburi" and are the same as "Sai," "Sui," "Sinui," "Sainoosi," "Saiburi."

A. Three circular coins sent to me by the Lord Lieutenant of Patani in July, 1920. Pewter; with a circular central hole. Sizes 28.6; 28.1; 28.5 mm.

On one side is an Arabic inscription within an interior plain line circle; outside this circle is another similar circle and between the two a simple border of what appears to be a mere design thus (*e*) The inscription seems to read "al dowan al khairiah fi balad al Sanoosi 1307" (*i.e.* Metal fraction of the villages of the country of Sanoosi 1307). [*i.e.* 1889-90.]

On the other side the outside border is repeated and what may be an attempt at a floral design takes the place of the Arabic inscription.

Mr. Moquette who has similar coins tells me that his (which are not very legible) appear to read اسبيوي. (i.e. Assabiwi). [Pl. IV, fig. XXVI.]

I may leave Patani with an amusing story told me by Mr. Humphreys about the origin of the word "Wang" (used almost all over the Malay Peninsula to mean "money"). It is *said* to be derived from a corruption of the name "Awang" given to her adopted Chinese son by the Raja Nangchayan who is supposed to have been Queen of Patani about 1700 A.D. This Awang manufactured 2½ cent pieces which were called "Wang" after him. Hence the Malay proverb "Sa-tali tiga wang" literally "One string (of cash = 7½ cents) three wang (of 2½ cents each);" *i.e.* 7½ cents is the same as three times 2½; so our "Six of one and half a dozen of the other" has a nice Malay counterpart!

Patna, Bihar and Orissa,
India.

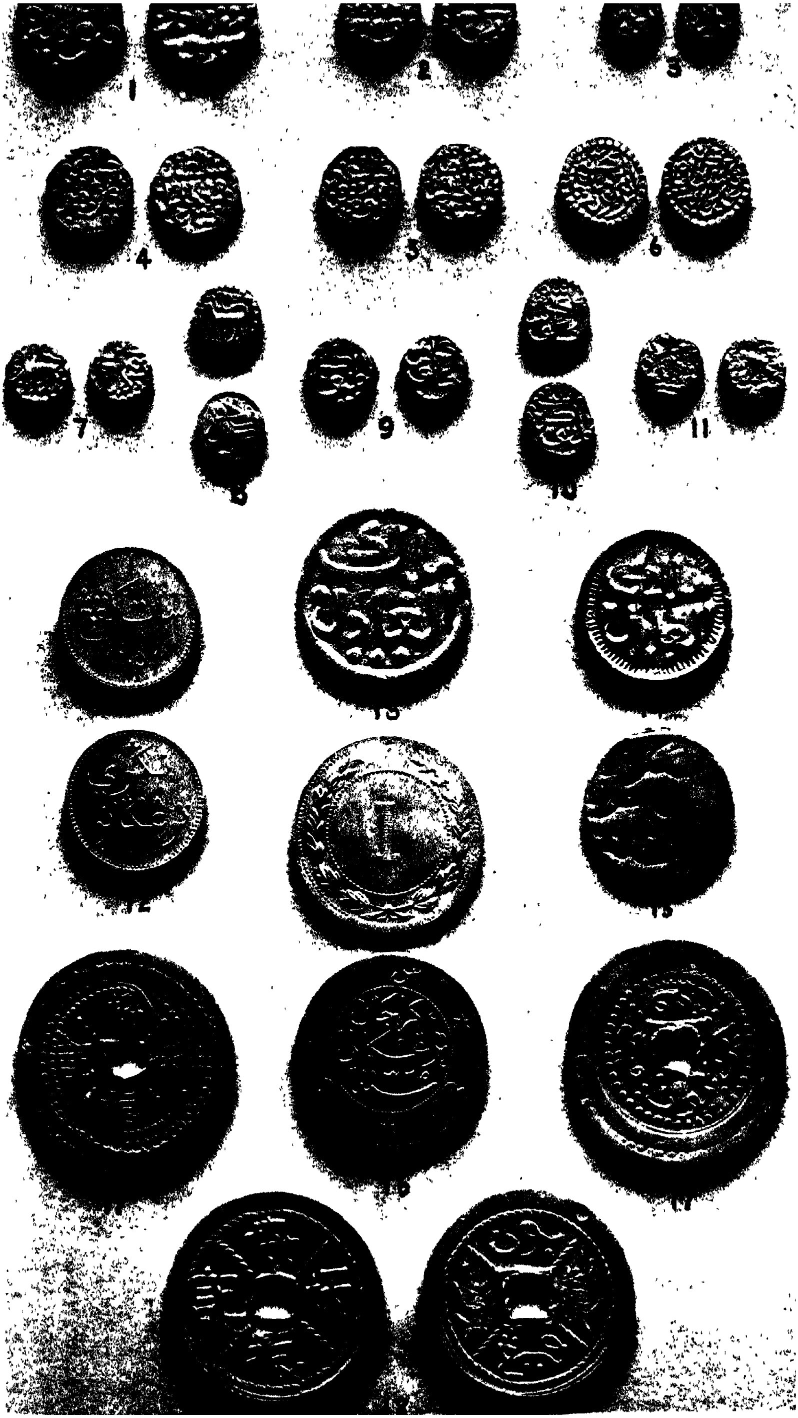

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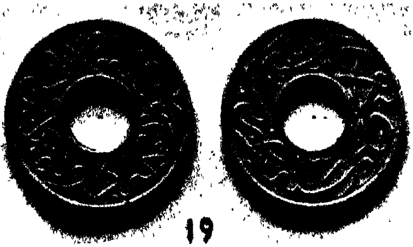
PLATE II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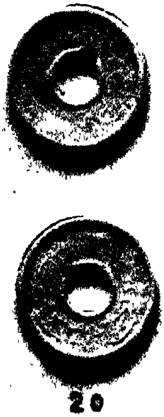
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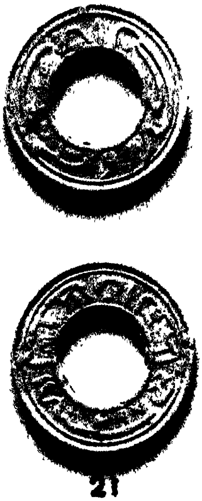
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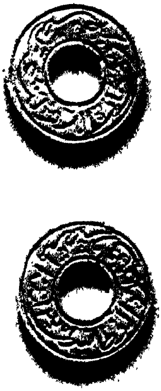
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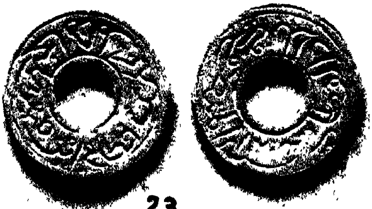
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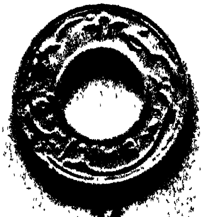
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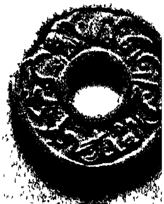
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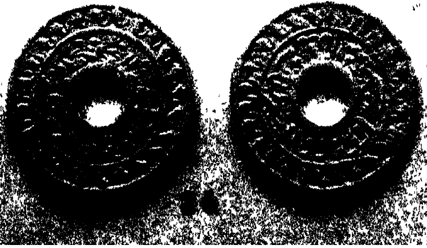
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Notes on Dipterocarps.

No. 9. On differences in the seedlings between Balanocarpus maximus, King, and B. Heimii, King.

By I. H. Burkill.

The germination of three species of the genus *Balanocarpus* was described in the No. 81 of this Journal (March 1920), —of *B. Heimii*, King, under the wrong name of *B. maximus* (pp.3-4), of *B. penangianus*, King, (pp. 65-66) and of *B. Curtisii*, King, (pp. 59-60). It is now possible to describe that of the true *B. maximus*, from seeds collected by Mr. R. E. Holttum in the Selaru forest reserve, Negri Sembilan, on November 27th. 1922 (no. 9709).

The fruit has the shape of a very short cigar. Falling from the tree at maturity, it naturally rests horizontally, and so lying germinates at once, thrusting out its radicle as in Fig. 1.

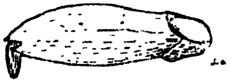


Fig. 1. The germinating fruit of *Balanocarpus maximus*, ½ nat. size.

If at this stage the fruit-wall be removed the cotyledons will be seen parallel as in figure 2, the placentar cotyledon just excluding the dorsal cotyledon from the base of the fruit-cavity, but both reaching the apex. In section, at *a*. in the figure, the dorsal cotyledon will be found to embrace the placentar very slightly: but in a section at *b*., which cuts the lobes of the cotyledons, these are found to surround the radicle equally.

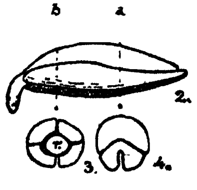


Fig. 2. The embryo of *Balanocarpus maximus* exposed, seen obliquely from the side and from the placentar face. Fig. 3, a. section of it at *b*. and fig. 4, a. section of it at *a*. ½ nat. size.

The whole embryo is purple.

The first outward sign of germination is the appearance of 2, 3 or 4 small radiating cracks at the very apex, as the fruit-wall gives way in front of the thrust of the radicle. It is rare to find four cracks, and in the sample of seed examined only 3 per cent exhibited so many. Three is the most usual number, but two is quite frequent, even to making 26 per cent. The radicle forces the cracks open until they are about 2 mm. long: that suffices to free it; and it turns downward to the soil as in figure 1. The cotyledons by growing meanwhile exercise a pressure inside the fruit-wall which extends one of the cracks around the radicle, until it reaches the very base; and the fruit-wall then by their expansion is thrown off. This one crack varies greatly in position: to what an extent is indicated by the diagram (fig. 9 on p. 221), wherein the distance from the placenta to the crack is recorded for thirty fruits, all of which had been split at the tip by the radicle in three radiating lines. The diagram shows that the long crack was produced in eight of the fruits within 45° of the placenta; it was produced twenty times within 90° of the placenta, that is to say over the placentar cotyledon or about its edge; and it was produced a further nine times within the octant between 90° and 135°. It was produced in one fruit only at a greater angle.

These observations are fully in accord with the idea discussed in this Journal (No. 86, 1922, pp. 287-291) that in the Dipterocarps the fruit is not dehiscent, but is ruptured from within by the growth of the embryo. The position of the longest crack comes from the attempt of the cotyledons to flatten themselves in growth, which tendency is certainly modified by the very frequent irregularities in the packing of the cotyledons, and probably modified by the wetness or dryness, *i.e.* relative hardness, of the opposite sides of the fruit as it lies prone upon the moist soil.

When the young plant of *B. maximus* has thrown off the fruit-wall and seed-coats, the lobes of its cotyledons diverge as in figures 5 and 6. They are, as the drawing shows, nearly equal; and they stand parallel through life as in figure 8.

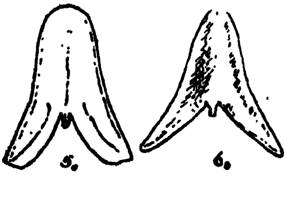


Fig. 5. The dorsal cotyledon from the outside, and fig. 6 the placentar cotyledon from the face towards the dorsal cotyledon. ½ nat. size.

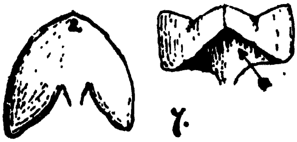


Fig. 7. The cotyledons of *B. Heimii*, showing how unlike they are to those of *B. maximus*. On the left is the dorsal cotyledon, from the outside and on the right the placentar cotyledon, from the face towards the dorsal cotyledon, ½ nat. size. The arrow on the placentar cotyledon point to the angle of the impression made on it by the dorsal cotyledon where the point 2 fits.

The parallel position is as in *B. penangianus*: and the fruit of that species is certainly in other characters like that of *B. maximus* e.g. the smoothness, the grey surface, and the way in which the radicle emerges when but very little disturbance to the fruit-wall has occurred.

The cotyledons are followed by a pair of leaves, and the seedling is now as drawn in figure 8. There is much purple pigment in it, both through the cotyledons, and on the underside of the leaves.

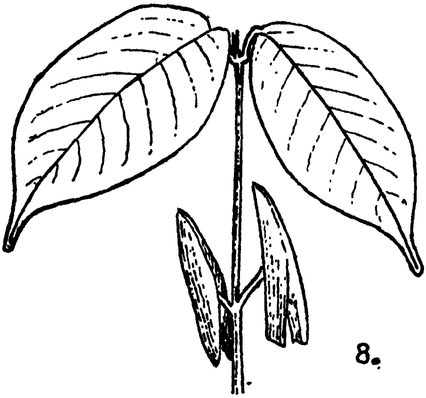
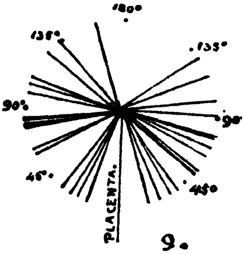


Fig. 8. The seedling of *B. maximus* carrying its cotyledons parallel and with its first pair of leaves.

Balanocarpus Heimii has a very unlike seedling; and it is drawn here in figure 10 to show that its cotyledons besides possessing a different shape and being packed differently when within the fruit wall, come to stand horizontally. and to show also that four (sometimes five) leaves follow them in a cluster.

The fruit whence came the seedling drawn, was collected by Mr. R. E. Holttum in the Senaling Inas forest reserve, Negri Sembilan, on November 28th., 1922.

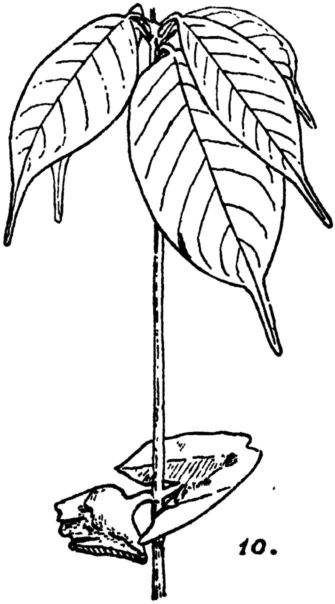


9.

Fig. 9. The position of the long split by which the embryo of *B. maximus* escapes from the fruit-wall in relation to the placenta. The reader is to assume that he is looking at the apex of a fruit with the placenta downwards, and then the radiating lines indicate the position where the fruit-wall in thirty fruits was ruptured.

The first leaves show glandular patches as described by Dr. F. W. Foxworthy and the writer, in the Journal No. 86, p. 278, for *Vatica Wallichii*, Dyer, and *V. ridleyana*, Brandis.

Having a supply of fruits of *Balanocarpus Heimii* along with those of *B. maximus*, they too were set to germinate, and a small experiment was done with them as follows. Some twenty fruits were bound round with rubber rings and left to be ruptured by the embryo within. When so treated the rupture never extended below the ring which by its pressure counteracted the thrust of the cotyledons within.



10.

Fig. 10. The seedling of *B. Heimii* with its horizontel cotyledons and first five foliage leaves. ½ nat. size.

In conclusion the differences in early life between *B. maximus* and *B. Heimii* may be set down in the form of a table:—

B. maximus	*B. Heimii*
cotyledons not markedly dissimilar.	cotyledons very dissimilar and unequal.
packed parallel, the dorsal only just failing to reach the base, and both reaching the apex.	packed the one above the other, the dorsal at the apex of the fruit, the placentar at the base.
held upright after germination and continuing so through life.	becoming horizontal, and the dorsal from having been folded within the fruit, reflexed so greatly as to be convex above.
first leaves a pair.	first leaves four or even five together.
young plant purple.	young plant green.

The Teaching of Malay

At the School of Oriental Studies, London.

By C. O. Blagden, M.A., Barrister-at-Law.

Reader in Malay, University of London.

Malay forms but a small and relatively unimportant item in the curriculum of the School of Oriental Studies, which has taken all Asia and Africa for its province and casts a benevolent eye over Polynesia as well. But to readers of this Journal Malay is of especial interest. So I need make no apology for saying a few words about a subject that I have taught at the School for the last five years. Nor do I propose to apologize for the inevitably personal note: it is my business that I am to speak of, and of course "there is nothing like leather."

The teaching in our School is at once scientific and practical. While the School is a centre of research in which scholars of long experience gladly assist advanced students to make further progress in special departments of knowledge, along literary, philological, epigraphical, historical or other lines, yet the greater part of the School's time is devoted to the training of beginners in elementary rudiments. One must begin by laying a solid foundation; moreover most of the students aim only at attaining a competent knowledge of one or more Eastern languages for business or everyday purposes. The School is not an institution devoted to dryasdust speculations and "ologies": it endeavours, very successfully, to adapt scientific means to practical ends by giving, in the most compendious and accurate way, a training in the spoken languages of Asia and Africa.

In teaching Malay it has been my aim to observe these principles. My opening question to every new student has been: "For what purpose do you propose to learn the language?" Upon his answer depended the method adopted in teaching him. If he was aiming merely at a knowledge of the colloquial, I advised that it would not be necessary or desirable to trouble himself with the Arabic script or the literary form of Malay. If he was one who had later to pass official examinations, I framed my syllabus accordingly.

In either case I have always made the spoken language the starting point. I consider it essential to devote the first few months to it exclusively, reserving the literary form till the student has acquired familiarity with the spoken language. The two styles differ very much, and to learn them concurrently from the beginning is apt to confound them in the pupil's mind, so that he tends to mix them up and talk like a badly written book, a serious fault in speaking any language.

I have found it useful to begin with a brief characterization of the structure of Malay, contrasting sharply as it does with that of European languages, and to add some introductory information as to the position of the language in relation to the cognate Indonesian languages and other foreign tongues. Such matters do not directly assist anyone in learning to speak, but they stimulate interest in intelligent pupils. Learning is like digestion: much has to be presented that is not necessary for the mere purpose of being assimilated but renders the process of assimilation more agreeable. To give the essentials in tabloid form might be sufficient, but would be desperately uninteresting.

In the same spirit, I endeavour to intersperse all manner of information, geographical, historical, or anecdotal, illustrating the customs and ideas of the Malays, thus giving pupils some notion as to environment in which they will find themselves in the East. Diversions of this sort are a relief from the application of the mind to the memorizing of new words and sentences, a task that is apt, if undiluted, to fatigue the brain.

Correct pronunciation is of the very first importance, so, I have invariably devoted several lessons in the early stages of the course to a careful exposition of the sounds of the language. Considering that the sounds of Malay offer relatively few difficulties to the average European, it is remarkable how badly many Englishmen pronounce the language. This is due to want of systematic training. Most people pick up Malay by ear. But neither their ears nor their tongues have ever been trained, and as they do not hear correctly, they fail to realise that they habitually mispronounce. Even if they have had a *munshi*, the result is often the same, because many *munshis*, having no knowledge of phonetics, do not know how to correct bad tendencies in pronunciation, and others are too diffident. I have made it a practice to pronounce the individual Malay sounds and illustrate them by specimen words, repeatedly encouraging pupils to say them after me and pointing out to them where they went wrong, and why. Though pupils differ much in their facility for imitating foreign sounds, I have found that good results were achieved. This is not merely a matter of ideal scientific accuracy. It is not generally recognized how much more readily a man is understood if his pronunciation is really "just so" than when it is only "more or less." Let anyone try to remember what English sounds like when spoken by some unfortunate foreigner who is asking his way in London and mangles some ordinary place name like Piccadilly or Covent Garden!

It is mainly in pronouncing the Malay vowels that people are apt to err. But there are other niceties. How many Europeans distinguish between final *h* and the glottal stop which is written as final *k*? How many have realised that final *p* and *t* are habitually unexploded? (I do not remember to have seen this mentioned in any Malay grammar.) How often do we find Malay words stressed just like English ones, whereas the stress should be much weaker, and Malay long vowels made as long as the corresponding English ones, when really they are but little longer than the Malay short vowels. Intonation, a subtle element which pervades every language (not solely "toned" languages) and puts the finishing touch to correct and intelligible speech, has remained unexplored in Malay. It has been my endeavour to attend to the e various points and to introduce my pupils from the start to a sound standard of pronunciation, based on the Malay of Johore and the coast districts of Malacca. It is so much easier to learn the right than to unlearn the wrong.

One passes on to the construction of phrases. It is a psychological fact, on which all good teaching depends, that the human memory has laws, by which we must be guided. One is the principle of the association of ideas. It is a matter of common sense, supported by experience, that it is unprofitable to attempt to memorize strings of unconnected foreign words: one forgets most of the A's and B's long before one reaches the M's and N's, to say nothing of the Z's. Groups of two or three words, conveying simple definite meanings, can be profitably memorized, particularly if they are chosen so as to embody phrases useful in practical life. By way of introduction, I lay stress on the great difference between the inflected synthetic languages (like Latin) and a language of the type of Malay, bringing out the importance in the latter of the syntactical order of words in the phrase and sentence. Whereas in the former type of language intimate relation between two ideas can usually be indicated by grammatical concord (expressed in the form of changed terminations of words), in the latter it is shown by juxtaposition according to certain principles of order. I illustrate this by a number of typical combinations of simple words, exemplifying the various relations of two nouns (the second being either in apposition or in one of the numerous varieties of what we should call the genitive relation), of a noun and an attributive adjective, of an adjective qualified by a noun and so on. Then follow nouns with demonstrative pronouns, with and without adjectives.

At this stage may be pointed out the influence of Chinese syntax, which has affected Bazaar Malay and in that dialect has caused the demonstrative to be put before the noun. While all systematic teaching of colloquial Malay must be based upon the standard colloquial, from which alone the various foreign modifications classed as Bazaar Malay can be explained, it is necessary that these latter also should be introduced to the pupil's notice, inasmuch as he will often have to hear them and use them when he meets Malay-speaking foreigners, especially in the towns.

From such combinations as *rumah bĕsar ini*, "this big house", I pass by a mere change in the order of the words to the type of Malay sentence that contains no verb: e.g., *ini rumah bĕsar*, *rumah ini bĕsar*, and *bĕsar rumah ini*, conveying, with slightly differing shades of mental attitude, the information that the house in question is a big one. I dwell on the fact that thousands of sentences are constructed on these simple lines, without any *ada* (which European and other foreigners are so fond of introducing). Next I explain cases where *ada* really is wanted; and then introduce sentences involving simple intransitive verbs with their subjects, and the ways of expressing perfect and future shades of meaning. At this stage it is convenient to bring in the pronouns and a few simple transitive verbs with their objects.

Thus, without much teaching of formal grammar, the main principles of Malay syntax are illustrated and explained in a progressive way, fresh parts of speech such as prepositions, adverbs, particles, etc., being added as occasion arises. And here let me enter an emphatic protest against the persons who in their ignorance sometimes say that Malay has no grammar. Either they do not know Malay, or they do not know what constitutes grammar, or, perhaps, they know neither. It would be as sensible to say that English has no grammar. We still suffer from a one-sided illusion that grammar is made up of *amo*, *amas*, *amat*, or *mensa*, *mensam*, *mensa* and the like, whereas (properly understood) the word stands for the whole system and *rationale* of any given language, deduced from its manner of putting its materials together into phrases and sentences, and in no other possible way. The latest authority on these matters * admits that all the complexities of English grammar have not yet been unravelled, and the same may well be true of Malay.

While grammar as such is of no great help when one is teaching people their own native language, it is different when we try to teach Malay to European pupils. They encounter a linguistic system quite alien to them, and the question is how they are to be enabled to assimilate it. I find that when concrete examples are freely used to illustrate (and even precede) abstract rules, the process of assimilation becomes surer, easier and less tedious, having regard to the fact that the average pupil is not, and cannot be expected at short notice to become a linguistic expert or enthusiast. But some generalization in the direction of rules is inevitable. The trouble I used to find with my Malay *munshi's* teaching was that I could never get him to help me to such a generalization. He would give one a sentence of a certain type, which I may call the A type. Then one would attempt to frame some other sentence on the analogy of it, but would be told that that it was wrong because one had to use another type; the B type! One naturally put the question: "When must I use the A type and when must I use the B type of sentence?" As a rule, the *munshi*, not being acquainted with any general principles, could not give any definite answer.

Now that is manifestly unsatisfactory. A language is made up of a potentially infinite number of sentences. It is impossible to memorize them all. But the vast majority of them are not independent individual phenomena: they fall into groups, classifiable on pretty definite principles. When, therefore, a number of typical sentences have been memorized, it becomes necessary to acquire some working grasp of the principles which determine the varieties of types of sentences. And that is what I call grammar.

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* *The Teaching of English in England* (Report of the Departmental Committee appointed by the President of the Board of Education), 1921.

It has been my practice during the first part of the course to employ almost exclusively only simple (or underived) words, meaning thereby words which are unaffected by prefix or suffix. Not till a later stage do I explain and illustrate the system of affixation bit by bit by phrases and sentences. This seems to be in due proportion to the comparative degree of its importance in the spoken language. and also in accordance with the principle of proceeding from the simple to the complex. Meanwhile the sentences given as examples that began with groups of two or three words, have been gradually lengthened, always with a caution as to the avoidance of complexity and with attention to the characteristic colloquial Malay terseness and economy of material.

As occasion serves, idiomatic phrases are introduced, especially common colloquialisms: and if they are idiomatic in the true sense of falling under no general rule, the fact has been emphasized. In such cases there is nothing to be done but to memorize the individual phrase; and when allowance has been made for the utility of grammatical rules and principles, I am convinced that, as a matter of method, memorizing sentences remains the fundamental way of learning a language. To that end I secure frequent repetition by the pupil of sentences uttered by myself in the same lesson, and eventually, by revision of sentences given in previous lessons. While not discouraging the taking of notes, I consider that everything should be done as much as possible through the memory of the sounds heard, in fact aurally, rather than by reliance on the written word by visual association. I have in mind a pupil, who suffered from slightly defective hearing and for whom I was tempted to modify my method by writing words upon the black board. The result was unfortunate, for there came a time when he could not identify or understand anything until he had mentally spelt it out to himself. His memory, instead of being aural, as it should have been, had been allowed to become almost entirely visual.

On the basis outlined above, I proceed, for the relatively few pupils who require it, to pass to the Malay literary language, first explaining the principles of the Arabic alphabet and its historic adaptation (very imperfect, unfortunately) to the requirements of Malay spelling. Having given the pupil plenty of exercise in reading and writing the Arabic character, I take him on to simple texts printed in that script while I still continue to teach him the spoken language. For most pupils, I continue the colloquial, introducing fresh sentences with additional words on all sorts of subjects chosen chiefly for practical utility.

Unfortunately, most pupils have not the time to take an extended course. After a few months, or even weeks, the East calls them, and they pass out of my ken. But I am satisfied by experience that even in such a short time most of them have laid a solid foundation, which stands them in good stead and enables them to make more rapid progress when they reach the Malay Peninsula. I am inclined to believe that two or three months of the teaching described are equivalent to the first six months of a beginner in the East who arrives knowing no Malay at all, and has to pick it up as best he can. Probably even with an efficient *munshi* he could not learn as much in four months; and there are many things he would not have learnt from a *munshi* in those four months, which I make a point of bringing to his notice at a relatively early stage. Young men destined for the East often have a few months' notice before they leave England, an interval they could profitably employ in learning the elements of the language and acquiring some ideas about the country and the people. A pretty strong case can be made out for sending them to the School to give them a good start. For most Asiatic languages this has been done, as the School with its 400 or 500 pupils a year is evidence. It is unfortunate that, for reasons which I trust are temporary, Malay has not yet received the attention it deserves.

Of advanced students, men, who having already been to the East and acquired familiarity with the written language, desire either for examination or other purposes to progress still further, I have had only a few. It has been a great pleasure to read with them, though I doubt if I have not learnt more from them than they from me. I think I can safely say that I have learnt more about Malay in the last five years than in the preceding twenty (or perhaps even twenty-seven, for I first landed at Singapore in December, 1888). If one wants to learn a subject, there is nothing like trying to teach it: I propose to go on learning a good while longer; and though in the last few years several books have been published that are of great assistance in the way of studying and teaching Malay, I still feel the want of adequate materials for learning the colloquial. With the literary language it is otherwise; there are plenty of texts in it, though of course there can never be too many. But I am not here concerned with what has beeen written in literary Malay.

In my five years of teaching I have had very nearly fifty pupils, of whom just over a fifth were women. I have found little difference in aptitude between the two sexes. I have had two Chinese pupils, and one Malay, the son of a Sultan, who had been long enough in England to forget his mother tongue almost entirely. He proved a very apt and pleasant pupil, making rapid progress in a short time: it was no doubt an instance of subconscious memory. Most of my pupils studied with me only for a few months, which was all the time they had. But in the main they made good use of it. The majority were men with commercial or agricultural careers in view. Only about a fifth of the whole were Government officials; and with *one* exception, so far as I am aware, these all attended Malay courses on their own initiative, without prompting or assistance from Government. It is, of course, entirely a matter for the

Government to decide if it will avail itself of the facilities afforded by the School. The institution is in receipt of a considerable grant from the British Treasury and a smaller one from the Indian Government, besides lesser subventions from other public sources. It has also received pupils from the India Office, War Office, and Admiralty, and also to some extent from the Colonial Office.

Some of the departments of Government have realized that the School can be of use to them, and I cannot but regret that the study of Malay has been left out in the cold. If I venture, very respectfully, to give expression to that regret, I may perhaps be allowed to add that personal considerations do not enter very largely into it. I have had enough pupils to keep me fairly busy, though I could as easily have dealt with classes of five, seven, or ten, as with classes of two or three pupils. I am thinking more of the future of Malay studies in general, and particularly in London. The University of London is the only one in Great Britain (or, so far as I know, in the British Empire) in which Malay is taught. In Holland and France the language has been taught for many years; here in London for the last five years only. Probably I shall not continue to teach it many years longer. But I hope that when the time for my retirement arrives, the teaching of Malay will not be allowed to drop. If it does, it will not be for want of a competent successor to myself, but only for lack of a sufficient number of pupils to warrant the School in keeping up a Readership.

If the readership were abolished, it would be highly regrettable. Apart from the practical advantage of giving beginners a good start, there is the matter of having some one in England whose business it is to further the higher branches of Malay studies and assist advanced scholars who are working either in the East or during their terms of leave at home. So far from allowing the post to lapse, I should like to see it supplemented by the appointment, as assistant to the Reader, of a young educated Malay, who could under the Reader's supervision do useful work in editing unpublished texts (of which there are so many in MS. in England) and share the work of teaching. It is the policy of the School, whenever circumstances permit, to have side by side with a European lecturer a native to assist in teaching his own language. Thus there are native teachers in Arabic, Turkish, Persian, Chinese, Japanese, and several of the more important languages of India. In pronunciation, fluency, and intimate knowledge of idiom, a native will almost invariably be superior to the European, while the latter, being usually the senior in years, will excel in breadth of grammatical and literary knowledge and in the technique of teaching, besides having a more thorough understanding of the difficulties that beset European students in learning an Asiatic language. So far there have never been enough pupils to warrant the appointment of a Malay assistant. Until the number of pupils is increased, no such development can be expected, and I hardly hope to see it in my time. But I trust that my successor will be more fortunate; and that, in any event, the teaching of

Malay in London, begun so recently and under such adverse circumstances as the war, the rubber slump, the general depression of trade and the absence of official support, will not be dropped or allowed to languish and lag behind the teaching of other Eastern languages. Surely it is in our interest that it should hold its own and develop, as time goes on, in friendly rivalry with Arabic, Hindustani, Chinese, Japanese and the other great vernaculars of the East.

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On a New and Interesting Dragonfly (Odonata) from Gunong Tahan.

BY F. F. LAIDLAW, M.A.

The mountain Gunong Tahan was until the close of the last century somewhat mysterious and until actually climbed by Europeans its height was the subject of rather exaggerated surmises. According to native tradition the mountain is guarded by its own "genius" or Jin. It is appropriate that the first dragonfly (I believe) ever recorded from this mountain should then be a new and in some respects quite remarkable insect, and I give it a name, *Macromidia genialis* which will associate it with the presiding deity of the mountain, in the hope that he may long guard its forest treasures unspoilt. It is a coincidence that the great Bornean mountain Kinabalu has yielded another species of the genus.

Macromidia is a genus of the sub-family CORDULIINAE and one of a small number which constitutes the group *Macromiina* of Tillyard. The anal area in this group is loop-like, not unlike that of some of the AESCHNINAE or of the CHLOROGOMPHINAE. All other CORDULIINAE except the archaic Australian *Synthemini*, and a few forms with very reduced venation, show at least some indication of the development of an "Italian" or "stocking" loop with a specialization of the vein called the "cubital supplement."

The genus is purely Oriental in distribution and contains but three species, *viz.* that here described, *M. rapida* from Tonkin and *M. rapida* from Borneo.

The genus differs from *Macromia* chiefly in its more rounded wings, in the presence of cross-veins between the radius and first branch of the media immediately beyond the nodus, and in the relative great length of the pterostigma. The male of *Macromidia* carries a keel on the tibiae of all three pairs of legs, whilst in the Oriental species of *Macromia* this keel is absent from the middle pair of tibiae. The two genera are quite different in general appearance, *Macromia* being built on much bolder lines. *Macromidia* and more especially the new species described below rather resembles another Oriental genus *Idionyx*, which latter genus belongs to a different section of the sub-family. The only other Oriental genus of the *Macromiini* is *Azuma*, a genus in venation little distinct from *Macromia*, and containing a few very large species whose larval stage differs remarkably from that of *Macromia* in the shape of the mask. The larva of *Macromidia* is of course still unknown.

Macromidia genialis n. sp.

Male. Differs from its known congeners in its smaller size, and by the fact that the triangle of the forewing is followed almost to the level of the nodus by a single row of cells for about seven cells. *M. rapida* Martin, the genotype, and *M. fulva* Laidlaw, both have two rows of cells in this area. They are both of them also rather larger.

The present species has the hind-wing 27.5 mm. long, pterostigma 2.5 mm. the abdomen 28.5 mm. + 1.5 for the anal appendages. Nodal indicator $\frac{7}{9}-\frac{15}{10}\Big|\frac{15}{10}-\frac{7}{11}$ Upper lip, post and anteclypeus shining black, frons and vertex metallic blue, the latter distorted from pressure, but with a fringe of long black hairs. Occiput black, synthorax with the dorsum dark brown paler, anteriorly and ventrally, sides metallic blue, with an obscure brownish stripe along the second lateral suture. Coxae yellowish-brown, femora dark brown, tibiae black. Abdomen entirely black, except that the ventral margin of the second segment and its genital lobe is pale yellow. The genital hamule is black, armed with a lateral process which projects to the outside of the genital lobe and is yellow in colour.

Type ♂ (and only known specimen): MALAY PENINSULA, Pahang, Gunong Tahan alt. 1000 ft. 3rd Dec. 1921 coll. F. N. Chasen. Presented by the Raffles Museum, Singapore, to the British Museum.

Explanation of Plate V.

Fig. 1. Fore and hind-wing of *Macromidia genialis.*

Fig. 2. Anal appendages of *Macromidia genialis* seen from above.

Fig. 3. Genital lobe and genital hamule of *Macromidia genialis* seen from the right side.

Some Pierine Butterflies New to Malaysia.

By J. C. Moulton, M.A., B.Sc.

Director, Raffles Museum, Singapore.

While re-arranging part of the butterfly collection of the Raffles Museum, Singapore, I came across a few species apparently new to different parts of Malaysia, which seem to me worthy of record. Three I describe as new subspecies viz.

Appias paulina Cr. **grisea** subsp. nov.
Udaiana cynis Hew. **tiomana** subsp. nov.
Gandaca harina Horsf. **aora** subsp. nov.

They were taken by Mr. V. Knight, formerly Assistant Director, Raffles Museum, on Pulo Aor, a small island off the East Coast of the Malay Peninsula, S. E. of Pulo Tioman, in Lat. 2° 30′ N. Good series of these particular forms are in the Selangor Museum, from Pulo Tioman. I am indebted to Mr. H. C. Robinson, Director of the F. M. S. Museums, for the opportunity of examining them.

I am also under an obligation to Mr. G. Talbot, Curator of the Hill Museum, Witley, to Mr. N. D. Riley of the British Museum and to Dr. F. A. Dixey F.R.S. of Oxford, for information regarding examples of these Pierines in the collections under their care.

1. **Pieris canidia** Sparrm.

Loc. Singapore, 5 ♂♂, 2 ♀♀ May, October, December 1922, February 1923 (Raffles Museum).

Distrib. This species has a wide range throughout India and east through Burma to China, the Philippines and Formosa. It is known in Tonkin, and Godfrey[1] records a single specimen taken in the Me Song forest, Prae, Northern Siam, in April 1916. This apparently is the furthest record south. Mr. Riley informs me that there are none in the British Museum from localities further south than Tonkin. Dr. Dixey, the eminent authority on the Pierinae, knows of none further south than Hainan and the South Shan States.

Its appearance in Singapore—together with its apparent absence in Peninsular Siam or the Malay Peninsula—suggests the possibility of introduction by human agency. The specimens agree well with those from India figured by Moore in *Lepidoptera Indica* (pl. 520). It is possible that the larva has come down to Singapore from India or China on some vegetable. As is natural in a great port, ships are already responsible for several curious additions to the fauna of Singapore.

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[1] *Siam Nat. Hist. Soc. Journal.* Vol. II. Dec. 1916. "The Butterflies of Siam" by E. J. Godfrey, p. 114.

2. **Pieris rapae** L.

Loc. Malay Peninsula, Kuala Lumpur "taken near Agricultural Department Dec. 1917, teste C. B. Holman-Hunt." (Selangor Mus.).

Distrib. According to Fruhstorfer in *Seitz Macrolepidoptera* (p. 140) this species ranges over Europe and east as far as Afghanistan and Kashmir. Its occurrence in the Malay Peninsula is difficult to explain, except by the supposition of introduction by human agency.

3. **Appias libythea** Fab. *zelmira* Cr.

Loc. Singapore, May 1922, 1 ♂ and 2 ♀ ♀. Pulo Aor, 13th June 1912, 1 ♂ coll. V. Knight (Raffles Mus.)

Distrib. The typical form ranges throughout India and Ceylon, replaced further east by *A. l. zelmira* Cr. which Fruhstorfer states is a rainy-season form sometimes met with even in Bengal. In the Philippines another subspecies occurs. *A. libythea* has been recorded in Siam and Tenasserim, but not further south before. There is a good series in the Selangor Museum from Hat Sanuk, Siamese Malaya, Lat. 12° N.

4. **Appias paulina** Cr.[1] *grisea* subsp. nov.

MALE: Differs from the Peninsular and Bornean forms in having the basal third of the fore wing and the greater part of the hind-wing dusted with lead-grey, which extends broadly along the costa of the forewing, leaving the apex creamy-white except for very slight dusting of black at the tip. The underside of the hind-wing is yellower than in Bornean specimens.

Forms from Kelantan and the east coast of Pahang approach this in the reduced black marking at the apex, but they lack the conspicuous grey dusting at the base of the wings.

FEMALE: Dark blackish-brown above; dusted slightly at the base of both wings with greyish or yellowish scales; four yellow spots across the apex of the fore-wing, the fourth very small; an ill-defined discal greenish-white band from third median nervule to inner margin. Cilia of both wings golden yellow. Underside fore-wing greenish-yellow at base, greenish-white over disk, succeeded by broad irregular sub-apical brown-black band, apex broadly golden yellow. Hind-wing golden yellow, with narrow irregular, almost macular or catenate, post-discal brown band.

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[1] **Recorded by Fruhstorfer (*t.c.* p. 155) as *A. melania* F., but the correct name should be *A. paulina* Cr., as the true *A. melania*=*A. asterias* Miskin from Australia (*vide* F. A. Dixey in *Proc. Ent. Soc. Lond.* 1911, p. lix).**

Much darker than the female of the mainland.

Loc. East Coast of Malay Peninsula: Pulo Aor, 13. vi. 12 2 ♂♂ coll. V. Knight (Raffles Mus.); Pulo Tioman 12 ♂♂, 4 ♀♀ June-July 1916 (Selangor Mus.).

Distrib. The typical form occurs in Ceylon with various subspecies ranging from Assam south through the Malay Archipelago.

The type ♂ of *A. p. grisea* is from Pulo Aor, the type ♀ from Pulo Tioman. Both have been deposited in the British Museum.

5. **Phrissura aegis** Feld. *caepia* Fruhst.

Loc. Borneo, Brunei, 11th June 1921. 1 ♂ coll. J. C. Moulton (Raffles Mus.).

This probably represents a new subspecies, but as I have only one male before me I place it provisionally under the name of the Palawan subspecies from which it appears to differ in the absence of any yellow on the underside, and in the more noticeable white strigae in the black apical-hind-marginal portion of the fore-wing.

It was taken by a Dayak collector near Brunei, the ancient capital of Borneo.

Mr. Talbot kindly informs me that there is a specimen of this species in the Hill Museum, Witley, labelled "Borneo," and that in 3 ♂♂ from Palawan and in this Bornean specimen some slight variation occurs and he therefore concludes that the Bornean form is probably not separable. I suspect however that if a long series were obtained it would not be difficult to separate the Bornean form from the Palawan form.

Distrib. The typical form occurs in Mindanao. Other forms are found in other parts of the Philippines, in Palawan, Sula Mangoli and Celebes. It has not been recorded from Borneo before.

6. **Udaiana cynis** Hew. *tiomana*.subsp. nov.

MALE: Differs from the typical form from the Malay Peninsula in having the base and the basal portion of the costa on the underside of the hind-wing infuscated with fuscous and greenish scales, agreeing in this particular with the Bornean form *U. c. pryeri*. It differs from the latter in having rather heavier fuscous spots to the hind margin of the hind-wing above. A narrow fuscous line crosses the disk of the hind-wing below in some specimens.

FEMALE: Is darker above than both forms, the whitish discal area of the hind-wing being very much reduced. The underside is dusted at the base of both wings with greenish scales.

Loc. East Coast of Malay Peninsula: Pulo Aor 13. vi. 12 2 ♂ ♂ coll. V. Knight (Raffles Mus.): Pulo Tioman 5 ♂ ♂ 2 ♀ ♀ June-July 1916 (F. M. S. Mus.).

7. **Gandaca harina** Horsf. *aora* subsp. nov.

Differs from the races in the Malay Peninsula (*distanti*) and Borneo (*elis*) in having the black distal border of the fore-wing very much reduced, being no more than 1 millimetre in depth at the apex and ceasing altogether at the 3rd median nervule. This is perfectly constant in the three specimens from Pulo Aor and in two from Tioman, but in two others from Tioman the border is very slightly broader, darker and longer, but is angulate at the apex and in that respect also different from the mainland form.

Loc. East Coast of Malay Peninsula, Pulo Aor, 13. vi. 12, 3 ♂ ♂ coll. V. Knight (Raffles Mus.); Pulo Tioman 4 ♂ ♂ June-July 1916. The type (from Pulo Aor) has been deposited in the British Museum.

Distrib. The species ranges from Assam to the Philippines and south to New Guinea, split up into several well-marked island races.

8. **Hebomoia glaucippe** L. *aturia* Fruhst.

Loc. East Coast of Malay Peninsula, Pulo Aor, 13. vi. 12, 1 ♂ coll. V. Knight (Raffles Mus.).

The above example differs from Peninsula specimens in having a distinctly pale lemon tinge to both wings in place of dead white. It probably represents a distinct subspecies, but in the absence of other specimens I place it provisionally with the Peninsula form. I have seen none from Pulo Tioman where the same form may be expected.

H. glaucippe ranges from India and China south to the Moluccas.

Fruhstorfer (*l.c*, p. 175) observes that *H g. vossi* from Nias and *roepstorffi* from the Andamans are the only West Malayan *glaucippe* forms with yellow upper surface to the wing. The Pulo Aor example is not so obviously yellow as these two forms from the other side of the Peninsula, but the yellow tinge is in marked contrast to the Peninsula form and is perhaps a link with the yellower forms of the Philippines.

On The Heel-Pad in certain Malaysian Birds.

By F. N. Chasen.

The presence of a peculiar structure known as the Heel-pad on the foot of the nestling Wryneck (*Iynx torquilla* Linn.), seems to have attracted the attention of most writers on European ornithology in recent years.

The fact of these heel-pads being found in the nestlings of other species of birds of a somewhat similar mode of nidification. with which phenomena it is essentially correlated, was not, until recently, appreciated to the same extent, although a few cases have been recorded and their presence in fully adult birds, of which a few cases are mentioned below, seems to have been overlooked.

Dr. A. Gunther was the first to give a lucid description and illustration of these pads. Referring to the Wryneck he says, "I have found a very peculiar modification of the skin covering the heel. The skin of this part is greatly thickened, forming a prominent pad 5 mm. long and half as broad, the surface of which is studded with obtusely conical tubercles." Again "In moving about the nest-hole, particularly when wishing to move to the edge of the cavity the young bird does not use the toes, but pushes itself forward by means of the rough surface of this heel-pad." (*Ibis*, 1890, p. 411). In *A History of Birds* (p. 261) W. P. Pycraft prophesies tnat the heel-pad "will perhaps be found to be present in the young of all birds which are reared in holes on the bare ground, or in hollow trees, when no real nest is made"—a statement, the accuracy of which is becoming more and more evident each day.

Apart from scattered references the only accessible paper on the subject is "Notes on the Heel-pads in certain families of Birds" by Count Nils Gyldenstolpe (*Arkiv for Zoologi*, Band 11, No. 12). After an examination of all the material in the Stockholm Museum the author just quoted concludes "Almost all species of birds nesting in hollows are in possession of more or less well-developed pads covering the metatarsal joints*. These pads are, however, mostly

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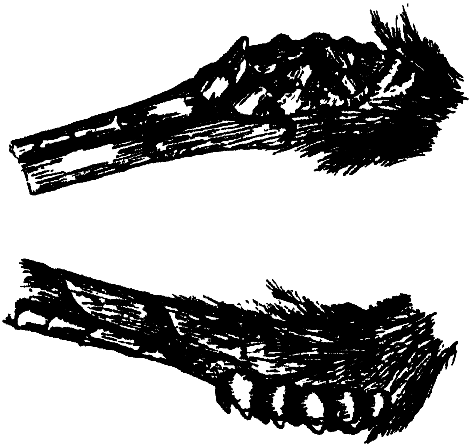
*** A few words as to the main features of the structure of a bird's hind-limbs and the usual method of terrestrial progression may not be out of place at this point, and will do much to elucidate the remarks above.**

Starting at the distal end of the limb there are firstly, the toes. Most birds are digitigrade and it follows that the region usually called the sole of a bird's foot is homologous with the under-surface of the toes of man.

The metatarsals and the distal row of the tarsals are fused to form a bone commonly called the 'tarsus' but which should be more correctly de-

quite smooth, though easily defined by means of their thickness. They are generally covered with more or less irregular scales which are mostly larger than those of the surrounding parts of the tarsus. Only in a few families, viz. the *Rhamphastidae*, the *Capitonidae* and the *Picidae* are they furnished with pointed tubercles, but in some other families, such as the *Coraciidae*, the *Irrisoridae*, and the *Meropidae* the edges of the scuta are slightly raised above the level of the middle parts and then form a fairly rough surface by means of which the young birds are able to push themselves forward. In the first-mentioned three families the pointed tubercles are not being shed until a long time after the bird has left the nest, as shown by several specimens in our collection."



Heel-pads of Chotorhea chrysopogon.

The interpretation adopted throughout the paper seems to be that a well-developed heel-pad furnished with pointed tubercles

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signated 'tarso-metatarsus.' Similarly the proximal row of tarsals are fused with the tibia to form a 'tibio-tarsus.' These elements can only be made out in the embryo or very young nestling, being represented in older individuals by the two long bones usually known as 'tarsus' and 'tibia.' The result of this compound structure of the limb is to form a 'meso-tarsal' or ankle joint as in reptiles.

It follows that the bird's heel and ankle are with the exception of a few plantigrade forms, always well off the ground. This ankle is just as often mis-called the knee.

In order to gain an appreciation of the various parts of the bird's leg we may liken it to the leg of a man standing on his toes. The birds 'tarsus' corresponds to the instep, (that is that part of the foot from the base of the toes to the ankle-joint).

The crus or leg proper is that part of the leg immediately above the bend of the leg or ankle and is furthermore erroneously termed the 'thigh,' but of course the true thigh (femur), is enclosed within the general contour of the body and the knee proper is always hidden in the plumage. In the great majority of cases the leg is feathered almost as far as the heel.

means that the nestling is active moving about the nest-hole, and that a pad consisting merely of a slightly thickened and swollen area points to an inactive condition in the nest.

The latest publication which mentions these pads is a paper by Collingwood Ingram in the *Ibis*, Series 11, No. 2, p. 867, where the author endorses the view held by Pycraft, namely that the function of the pads is to protect the young from injury in its unlined nest cavity.

Seth-Smith in recording the presence of well-developed pads in a young Toucanet (*Pteroglossus aricari*) remarks that the function is doubtless to enable the bird to climb up the side of the hollow cavity in a tree in which it is hatched, the pads forming, as it were, a second set of claws. This theory is supported by the fact that young parrots which have no well-developed tubercular pads are stated to use their beaks when moving about in their nest.

Field observations from living birds are badly needed in order to verify these views as to the functions of heel-pads, although the theories advanced are in very close agreement with the observed facts.

A very significant fact is that the points of the largest and more developed tubercles of the pad are in most, if not all cases, pointing in a direction most admirably calculated to give assistance to a nestling bird struggling along in a bare hollow.

There are two extreme types of heel-pad. One is the smooth cushion-like structure to be seen in certain small Owls and other birds. A stage further may be observed in those birds in which the scales on the pads are enlarged, slightly thickened, or even raised. In yet more modified types the scales are conical and raised, and in the opposite extreme have long, needle-like points, a condition well represented in the Toucans, Woodpeckers and Barbets. It is rather difficult to decide at what stage one is to recognise any enlargement of the ankle-joint as a functionable heel-pad. Collingwood Ingram has remarked that the nestling Starling has incipient heel-pads, an observation which the writer can support and augment by adding, from among British Birds, the Redbreast (*Erithacus rubecula*), of which there is a good series in the Norwich Museum which, at least when fresh—if not now—showed a distinct enlargement of the joint. Other instances are mentioned in the detailed notes given below under specific headings.

Certain features to be observed in the attitude and locomotion of nestling birds may possibly give a clue to the origin of the heel-pad.

It may be recalled that young birds are roughly grouped into two classes. There are the altricial or nidicolous young, typified by young Sparrows, which are hatched naked, blind and quite helpless—and there is the reverse type, the precocious or nidifugous nestlings which are hatched thickly clothed with down, able to see, and quite active. Game-birds, Bustards, Rails, Cranes, Sand-grouse, Ostrich-like birds, Gulls and Plovers are examples of active young. Between these two extremes are many gradations. As may be expected the altricial nestling is regarded as "specialised" and the precocious as "primitive."

Furthermore, it may be remarked that the precocious nestling is usually hatched on or near the ground, more often than not in a roughly shaped hole as an apology for a nest whilst the altricial young are usually provided with shelter from their enemies in trees, bushes or in nesting holes.

I have stated that the precocious nestling is active as soon as hatched. How far this is an actual fact or not it is a little difficult to say. It is certain that many species can run about (i.e., *standing on their toes*), within a very short time of being hatched. Young Ringed Plovers, for instance, can scarcely give their "down" time to dry before doing so.

Young Ostriches can stand upright in a normal manner immediately after leaving the shell, and in less than an hour are running about. Beebe (*The Bird*, p. 481) gives a splendid photograph, taken from life, showing the actual hatching of a group of Ostrich's eggs, and in the picture are two baby Ostriches, standing quite upright on their toes. All this goes to prove that the precocious bird is from the very beginning *digitigrade* although there must be moments of rest, but here we may safely assume that there would be no locomotion on the tarsus as, if the bird wanted to move, it would get on its feet and walk in a normal manner.

Exactly the reverse state of affairs is found in the altricial bird which spends the first two or three weeks of its life squatted down on its tarsi and is, in fact—if the word is permitted in the absence of locomotion—*plantigrade*. In the case of the young Passerine birds it is a day or so before they have strength to raise their heads and several days more before they can raise themselves upon their legs.

Before a young Scops-Owl (*S. lempiji*) had strength to stand in a normal, i.e., digitigrade fashion, its favourite position of rest was sitting upon its tarsi. The actual point of friction was the "heel" and the rest of the foot was held off the ground, a short way. Beebe, in *Tropical Wild Life*, gives an illustration of a nestling Toucan and remarks that it has well-developed heel-pads on which it rests, at the same time holding its feet in the air. Shelford, in *A Naturalist in Borneo*, talking of Hornbills, states: "It is chiefly on the heels that the young nestling rests and not on the plantar surface of the feet as erroneously shown in Wallace's *Malay Archipelago*." I find a similar state of affairs in taking early nestlings of several species of perching-birds from the nest and placing them on my hand.

It would appear then that the heel-pad is really a consequence of the plantigrade condition in the nestling, and furthermore a peculiarity noted in the structure of the young Redbreast (*Erithacus*) seems to point to the fact that the plantigrade condition of the nestling is not only the result of physical weakness but that it is owing, in some degree at least, to morphological considerations.

In the ripe embryo, the legs are very tightly packed into the ball-like mass into which the bird is curled, and are especially subject to be squeezed. The bird is bent upon itself, the ventral surface of the head lying next to the ventral surface of the thorax, with the tip of the beak closely approximated to the anus. The forelimbs are clasped tightly to the sides of the body, the elbows resting upon the thigh, and the wrist bent. The legs are bent upon themselves at the ankle, the front of the tarsus pressing upon the crus, the soles of the feet exposed, the toes very slightly flexed and close to the manus. The feature that demands attention is that there is no functionable point between crus and tarsus. The ankle region is swollen, but if the tarsus is even forced down to make the semblance of a right angle with the crus, it flies back when released, like the arm of a spring. In the newly hatched nestling there is the same stiffness and no sign of a crease on the back of the ankle denoting the joint as in the adults of all Passerine birds.

The gradual differentiation of the various parts of the limb (i.e., podotheca etc.) can be nicely observed in a series of nestlings of different ages, but it is several days before the tarsus and crus can be made to form one straight line without undue straining of tissues, a position from which in very young birds the legs would have immediately recoiled.

Thus it appears that the joint, in typical Passerine nestlings at least, is not functionable and the plantigrade condition inevitable. In this connection it would be interesting to examine some nestlings of a precocious species. Owing to the greater stage of development which these birds have reached on hatching it is no doubt possible to move the leg quite freely at the ankle as soon as the bird leaves the shell.

Gyldenstolpe records the presence of heel-pads in birds of sixteen families. With the exception of the Parrots, these are contained in the Orders Coraciiformes and Piciformes. Of these fifteen families the following groups are Neotropical or Ethiopian:—

Rhamphastidae,
Bucconidae,
Galbulidae,
Irrisoridae &
Momotidae.

Representatives of the remaining ten families are found in Malaysia. These are:—

ORDER PICIFORMES.

1.	**Capitonidae**	Barbets	(12)
2.	**Indicatoridae**	Honey-guides	(1)
3.	**Picidae**	Woodpeckers	(29)

ORDER CORACIIFORMES.

4.	Coraciidae	Rollers	(3)
5.	Alcedinidae	Kingfishers	(16)
6.	Bucerotidae	Hornbills	(11)
7.	Upupidae	Hoopoes	(1)
8.	Meropidae	Bee-eaters	(4)
9.	Caprimulgidae	Night-jars	(4)
10.	Cypselidae	Swifts	(13)

The number in brackets indicates the number of species found in the Peninsula alone, according to Robinson's "*Handlist of the Birds of the Malay Peninsula*" (1910). The nestlings of the large majority of these birds are still undescribed, and likely to remain so for a few years.

The nesting site, which is the all-important factor to be considered, varies in the above families, but in most cases little or no nest is made, the eggs being deposited in an unlined hollow, or in a hole in a tree or bank. Thus the newly hatched nestling has to rest on a hard surface.

The only other Malaysian family included in the two Orders is the *Podargidae* (Frogmouths) but no information is available as to the nestlings of these birds.

Turning to birds of other orders, pads have already been recorded in certain Parrots, and very similar structures occur in the nestlings of certain small Owls (*Scops, Ninox*), which, like the Parrots, nest in hollow trees.

Incipient pads have been recorded in *Sturnus*, and they also occur in other Passerine genera more frequently than is supposed. Among birds of other orders, isolated instances may well be expected to occur, if the mode of nidification is such as to render the accessory structure of use to the nestling.

The remainder of this paper will be devoted to some specific observations on the Barbets and Woodpeckers which present points of remarkable interest, and to a short consideration of those cases in which the heel-pad is only present in a very undeveloped state.

Family: **Capitonidae.** *Barbets.*

The specimens examined included a fair series of all the familiar Malaysian forms, with smaller numbers of the rarer species. The most interesting point brought out is that in individuals, at least of some species, a well-developed pad is found in the fully adult bird, and if the plumage is any indication, even an "old" adult. The reason for this is a little obscure. Perhaps the roosting habits, or the position assumed by the brooding bird would give a clue.

Mesobucco duvauceli. Of seventeen skins in the Raffles Museum collection, six are young birds in almost uniform green plumage. With the exception of one very young specimen (wing only 67 mm.) these birds are fully grown. In one, there are some blue feathers appearing on the throat. In all of these there are well-developed tubercular pads, the points of the tubercles being very sharp. The pad is about 6 mm. long and completely covers the breadth of the tarsus at the point at which it is situated. In no case is the pad complete; in one case there are 11 conical tubercles. Only the posterior scales are sharply pointed, the points being directed upward. In a slightly older bird, with some red feathers on the head, there is still a slight indication of the pad to be noted in the slightly conical scales, and this may also be true, although to a lesser extent, of fully adult birds.

Chotorhea versicolor. No nestlings were available, but three birds out of a series of twenty were found to have heel-pads, and these were all adults (male and female). One indeed, that with the largest pads, was the finest old male of the series. In the remaining seventeen birds the legs appeared to be quite normal, but this particular part of a skin is not easy to examine, particularly if the specimen is old and in not too good condition, for the skin of the heel always shrivels and easily peels. The pads consist of an elliptical ring of about ten or twelve large modified pointed scales or tubercles with about six smaller papillae within the ring. The points are directed upwards in the distal half of the pad, and downwards in the proximal half.

Chotorhea chrysopogon. In a male which I should say can in no way be judged a juvenile although the colours on the head have yet to reach their maximum intensity, I find the pads are extraordinarily well developed and fortunately complete.

Here again there is an elliptical row of large modified pointed scales, those on the outside of the ring being compressed and with longitudinal projecting edges rather than with sharp points. Maybe the points have been worn off. Those on the inside of the circle are scarcely as large and more pointed. The two posterior scales appear to be fused, and are larger and stronger than any of the others. Within the circle are six smaller conical papillae. The projections of the posterior scales are, as remarked by Gyldenstolpe of *Megalaema,* hollow.

From a study of Gyldenstolpe's figures and descriptions, and from the material in front of me at present it may be said that this is the typical arrangement of the pad in Barbets, although the number of tubercles may vary in species and, to a smaller extent, in individuals.

Cyanops armillaris henrici. In three immature birds which, although by no means adult, cannot be described as nestlings, there are well developed pads very similar to those described above, although there are fewer central papillae. The scales are also more uniform in size. The two large, posterior, upwardly directed and hollowed scales are still prominent.

Calorhamphus hayi. One of the Peninsular race (*hayi*) and one of the Bornean *fuliginosus* show some pads, but neither are in a good condition to describe.

There is no trace of a pad in any of the *Chotorhea mystacophanes, C. monticola, C. oorti, Zantholaema haematocephala* and *Psilopogon pyrolophus.*

Family: **Picidae.** *Woodpeckers.*

The pointed tubercles seem to be lost at a very early stage in this group. They no doubt are shed almost as soon as the bird leaves the nest, but the heel in some immature birds, and also in the adults of some species, shows enough deviation from a normal state to warrant the statement that they possess heel-pads. I have examined about two hundred skins of Malaysian Woodpeckers, none of them nestlings, unfortunately. In the adults of most species the region of the heel calls for no comment. In others there are slight modifications towards the formation of a pad, or, as it would perhaps be more accurate to say, there are remains of a pad still visible, although the striking structure characteristic of the nestling has long since been shed.

Chrysocolaptes validus xanthopygius. The ankle-joint is larger than usual and the back is covered with large scales, although these may be no larger than the scales on the back of the tarsus. The whole area, however, is swollen and suggestive of a functionable pad. In one specimen the development is greater than in the others, and in this bird the scales on the back of the tarsus (for the whole length) are larger than usual. The scales are particularly noticeable on that portion of the pad which lies on the crus.

Picus vittatus. The skins of two immature birds point to the fact that in life there would be a pad similar to that described in *C. validus.* The scales again are quite smooth.

Dryocopus javensis. In this species there is an unmistakable pad even in old and badly prepared skins. In two immature birds the edges of the scales overlap and are slightly raised, producing a roughened effect.

Dinopium javenensis. In a bird which one would have considered quite young enough to have pointed tubercles there is only the slightly swollen area indicative of a pad.

INCIPIENT PADS.

Family: **Eurylaemidae.** *Broadbills.*

In three late embryos of *Cymborhynchus macrorhynchus* the joint is distinctly swollen and there is a protuberance at that point on the tarsus at which a pad would appear. With regard to a heel-pad, which we should perhaps not expect to find in this group, these facts may have no significance. These embryos present a good case to show the original flexed condition of the leg, the difficulty in straightening the limb, and the consequent plantigrade condition.

Family: **Caprimulgidae.** *Nightjars.*

Gyldenstolpe records a quite young specimen of *C. macrurus* as having smooth, regular rows of scales, on the naked part of the metatarsal joint and expresses surprise that some remains of the heel-pad are still visible amongst the *Caprimulgidae.* In an embryo of *Lyncornis temmincki* I find that the region is well marked with rows of enlarged smooth scales, but these scales can also be traced if an adult is examined in the flesh, and it is by no means certain that there is any special development in this case although it is true that the ankle is more swollen and the scales are more easily distinguishable in the embryo than in the adult.

Family: **Cypselidae.** *Swifts.*

There are smooth but by no means conspicuous pads in three well-feathered nestlings of *Tachornis infumata.*

Family: **Ploceidae.** *Weaver-birds.*

It was surprising to find well developed, enlarged scales on the heel of a fledged example of *Ploceus infortunatus* and also in the nestlings of the small Weaver-birds of the genus *Munia* in none of which birds one would think that a protection for the heel would be required. The nests are soft enough, it is true, but these incipient pads may function when in the first few days after leaving the nest the young birds are frequently found fluttering about on the ground.

Family: **Nectariniidae.** *Sunbirds.*

In a nestling of *Arachnecthra pectoralis* there is a marked projection which I find to be slightly indicated in an immature bird, and not to be seen in adults. It is too marked to be ignored, but it is by no means conspicuous. Dissection of the leg reveals that it is in the greater part due to the enlarged proximal end of the metatarsal bone, but the integument is also slightly thickened. As in others included under this heading of 'incipient pads', this case may have no significance.

Family: **Corvidae.** *Crows.*

In *Eulabes* the heel is very rough, but much the same kind of thing is to be seen in *Corvus* and in the *Dicruridae.* Collingwood Ingram records incipient pads in *Sturnus*, and *Aplonis* can also be mentioned. Whether or not these slight developments in the heel are to be recognised as functioning like heel-pads is a matter to be settled in the field.

Family: **Bubonidae.** *Owls.*

In a nestling of *Scops lempiji,* about eight days old, there are smooth bare pads on the heel, but they are by no means conspicuous. The remainder of the tarsus is already feathered as in the adult. The pads are flattened and hard. That these pads function as protective cushions there can be no doubt, for I kept the particular bird from which the description was taken in captivity, and noted that it spent most of its time resting on the pads with the feet and toes in the air. To the nestling of *Ninox scutulata* the same remarks would apply as far as the pad and attitude are concerned.

Instances of Incipient Heel-pads could be multiplied indefinitely, but how much they are due to any modification towards a protective device, and how much to purely morphological reasons is a moot point. It is certain that in some groups of birds, e.g., many Passerine genera, not the slightest enlargement of the heel is ever to be observed.

The instances frequently occur in birds reared in soft lined and perhaps open nests, but that the structure becomes of definite use when it has developed to the cushion-like stage seen in *Ninox* one cannot doubt, although here it is possibly no more than a thickened surface on which the young bird can rest.

Careful observation of living birds is necessary to determine the part played by even the tubercular pads in the locomotion of nestlings.

I am very much indebted to Mr. W. P. Pycraft of the British Museum of Natural History for his kindness in reading through the M.S. of this paper and in offering some valuable advice thereon.

Miscellaneous Notes.

Two Malay Methods of Divination.

While staying at Lenggong, Upper Perak, in 1913 I attempted to see something of Malay magical practices, and, with this end in view, obtained the assistance of a Malay *kĕris*-smith, named Awang, who was doing some metal-work for me at the time(¹). He got up several magical performances for my benefit, none of which were particularly impressive, but among them was an exhibition of divining by means of floating needles, which was given by an old woman.

The needles were thoroughly dried and then gently placed on the surface of water contained in a bowl. Care was taken not to break the surface-film of the water, so that the needles should not sink. They were then watched to see if they would come together or keep apart. From observations thus made, it is said that a girl who is betrothed can tell whether her marriage will result in a life-long partnership or will end in a divorce(²).

Divination by means of a ring is sometimes resorted to in an attempt to trace a thief. I have seen this method employed in Pahang. The chief performer was an elderly, blind man. The apparatus used consisted of a gold ring which was tied to a long hair—taken from a woman's head—and a basin. The basin was divided into eight compartments, internally, by four lines drawn with Indian ink, which crossed at its centre. In each compartment was written the name of a person who might possibly be the culprit. The unattached end of the hair was given to the blind man to hold with the thumb and index finger of his right hand, and his hand was so placed that the ring hung suspended within the bowl, in the centre, and about half way up. The old man then intoned an orthodox Mohamedan prayer, and, after this, the ring began to swing upon the hair.

When the test is successful the ring swings violently, and finally touches one of the sections containing a man's name. This man is considered to be the thief. On the occasion that I saw the performance, however, the ring, though it swung considerably, did not strike the side of the bowl, even when other names were twice substituted for the original eight. In consequence it was thought that the money which had been stolen had been taken by some one whose name was not included in those tried, though suspicion pointed very strongly to one of the men in the first eight.

I. H. N. Evans.

(¹) *Journal of the F. M. S. Museums*, Vol. V, p. 59 *et seq.*

(²) A similar method of divination is, or was, employed in India.

On the Persistence of an Old Type of Water-Vessel.

Spouted clay water vessels are found in the Peninsula at the present day in Negri Sembilan, and the Perak Museum possesses modern locally-made examples from Kuala Pilah. There is also in the Museum a single representative of this type of vessel from Kuala Tembeling in Pahang, but the spout is somewhat different from those from Negri Sembilan, and the top much more widely open. The Negri Sembilan specimens are pot-bellied vessels with a spout projecting from the top of the body: they have a rather small aperture at the top, and a slight rim, or foot, below.

In the Museum of the "Bataviaasch Genootschap van Kunsten en Wetenschappen" are some very similar vessels, both ancient and modern, and these are particularly interesting for purposes of comparison with spouted water-pots from the Malay States, as they show that an ancient type of vessel has persisted till the present day.[1]

The modern material in the Batavian Museum comes from the West Coast of Sumatra and from Acheh. Examples from the former region are most like our Negri Sembilan specimens in that they are open at the top and of rather similar build, though they have not the small rim, or foot, at the bottom: being simply rounded. Those from Acheh are taller, due in part to their being raised on a considerable foot. Their tops are not open, but there is a small round hole in each at the side of the top. They are presumably filled through the spout by submerging the vessels bodily, the small hole being rather to provide an egress for the air, than an entrance for the water. The spouts, too, are longer actually, and in proportion, than those of the pots from Acheh and Negri Sembilan.

Let us now turn to the ancient specimens. Some of these are of Chinese make. One, an old blue-and-white vessel of the Ming Dynasty period, has an open top, a rather long straight neck, a short and fat spout, and a slight foot, comparable to that of the Negri Sembilan type. Another, an earthen vessel covered with green glaze, has an open top and a swollen and fluted spout, while the body is ornamented with perpendicular ribbings. A third vessel from the same locality as that last described—they both come from the Salayer Islands—is of fine red clay. It has an open top with a small lid, and a tumid spout. I do not know if it is of Chinese manufacture or not.

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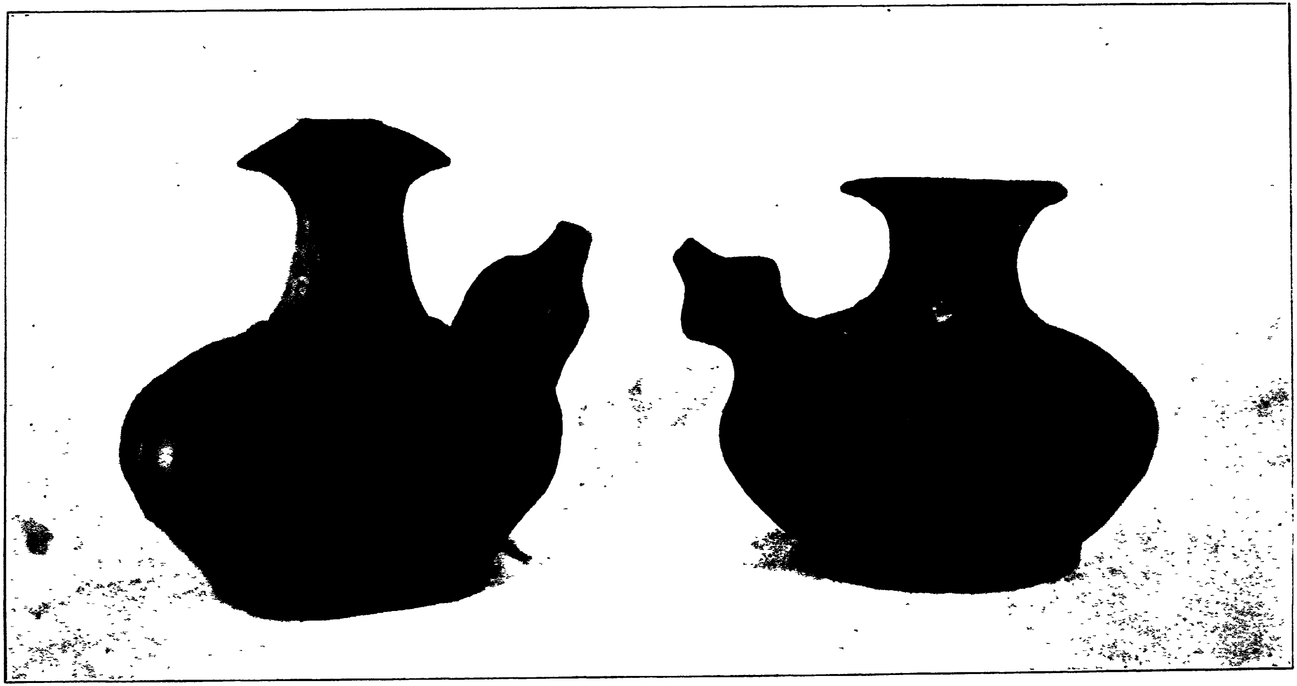
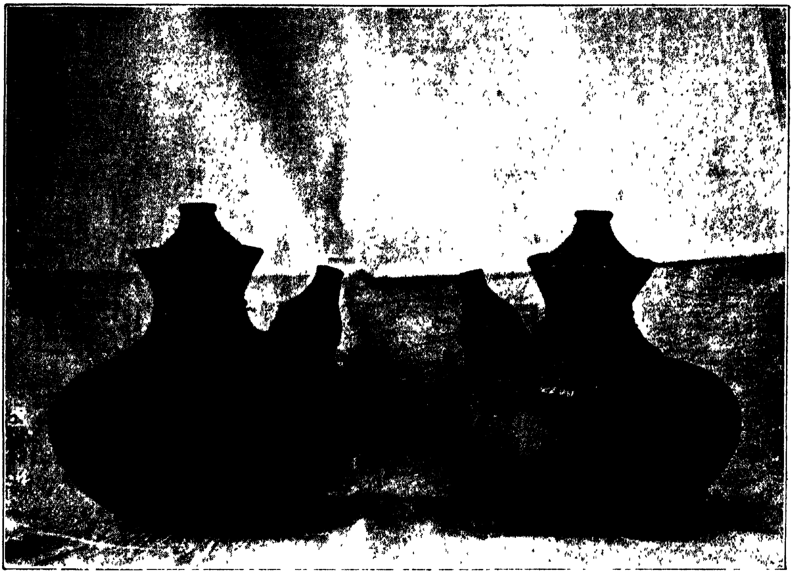
(1) My grateful thanks are due to the Committee of the Batavian Society and to Mr. Hoedt, the Curator of the Ethnographical Section of the Museum, for permission to take the photographs used in this article, and for other help.

PLATE VI.

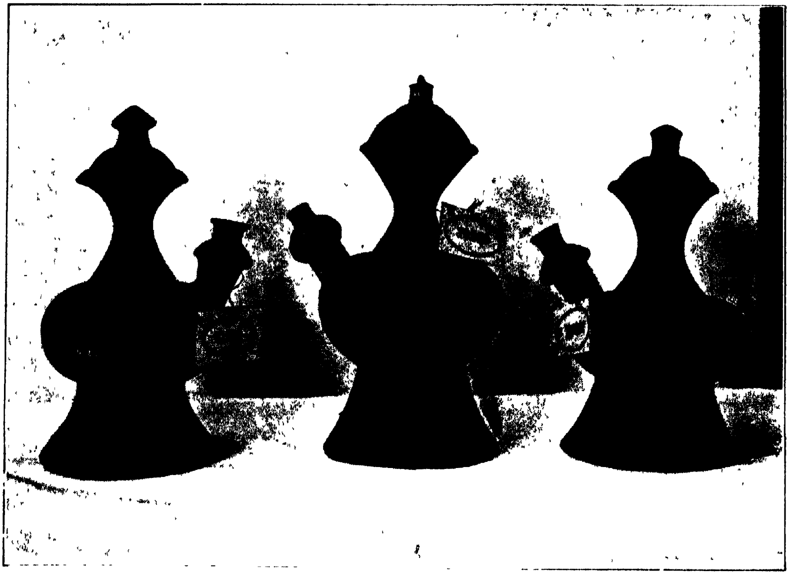


Spouted water-vessels from Kuala Pilah, Negri Sembilan.
(Perak Museum, Taiping)

PLATE VII.

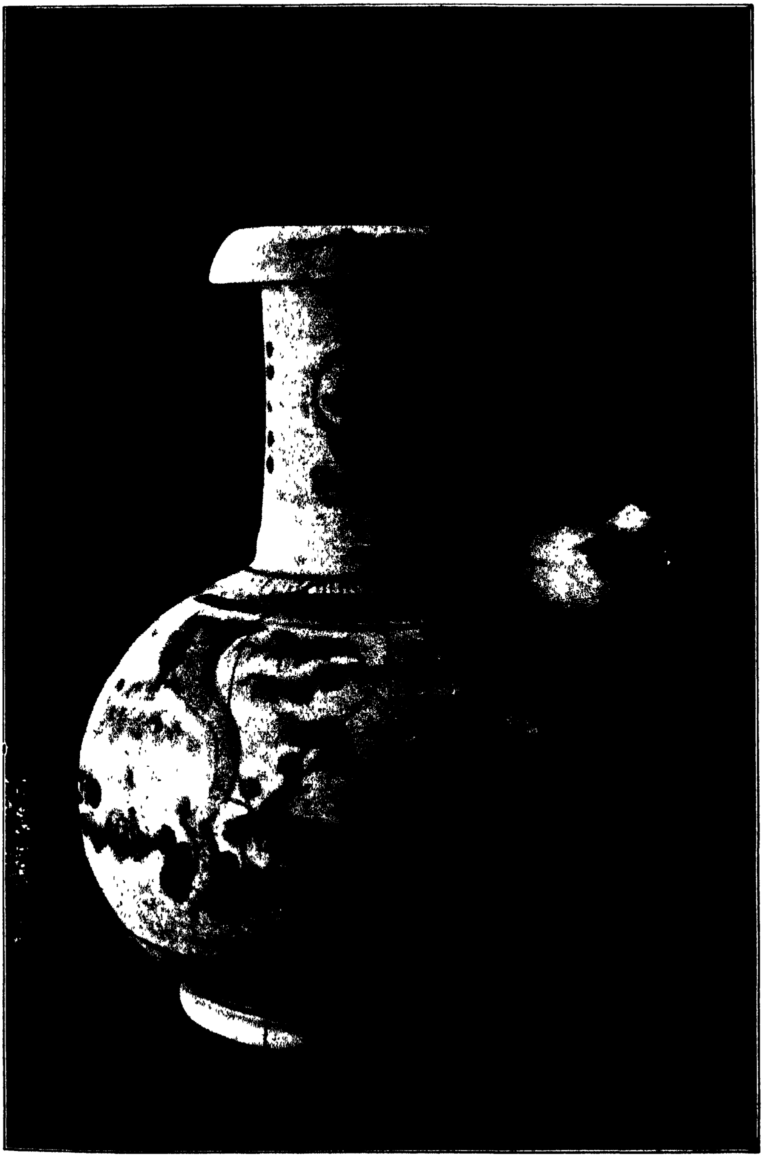


Water-vessels from the West Coast of Sumatra.
(Batavian Society's Museum)



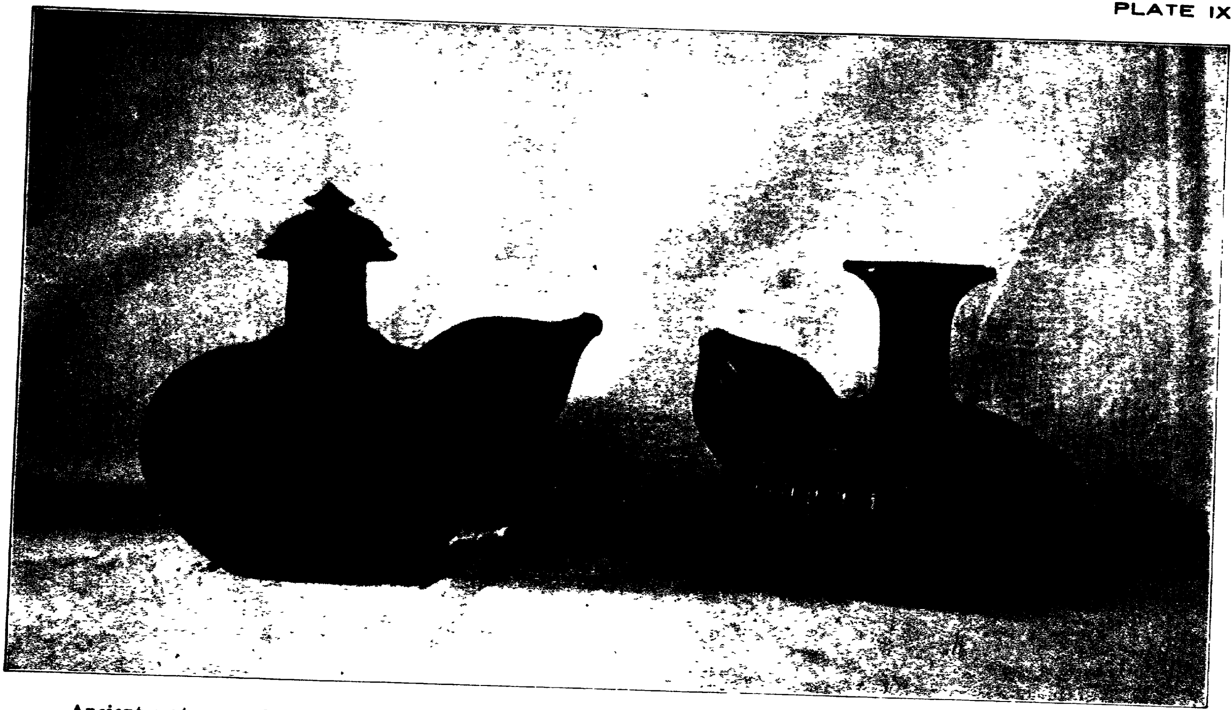
Water-pots from Acheh.
(Batavian Society's Museum)

PLATE VIII.



Ming period Chinese vessel from the Dutch East Indies.
(Batavian Society's Museum)

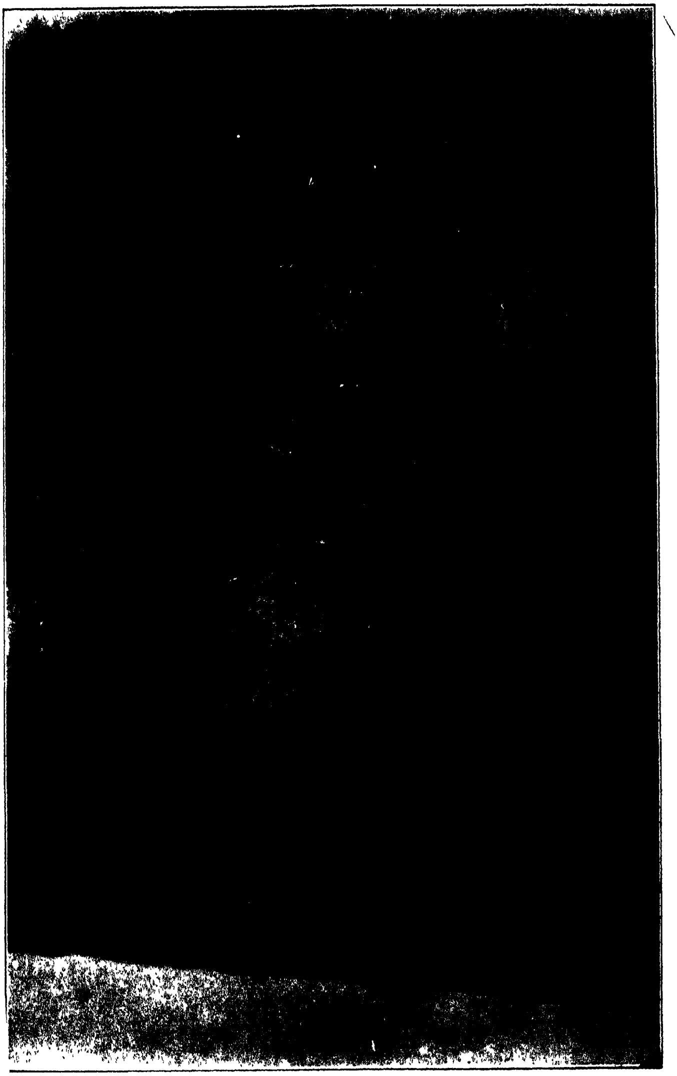
PLATE IX.



Ancient water-vessels from the Dutch East Indies. Both specimens come from Salayer Islands, and that on the right of the picture, which has a green glaze and dragon ornamentation. is obviously of Chinese make.

(Batavian Society's Museum)

PLATE X.



Kendi (Gendi) in hand of a figure of Bhrkuti. (Tjandi Toempang, afd: Malang, res: Pasoeroean).

(Batavian Society's Museum)

Spouted water-vessels are also depicted in Javanese carvings of the Hindu period. One representation of such a vessel is to be seen in the hand of a figure of Bhrkuti, which is in the Batavian Museum. The type here seen has a foot and a closed top, and much resembles the examples from Acheh, the chief difference being that the spout is turned up against the body of the vessel, and ends in an animal's head, the open jaws forming the aperture of the spout.

In addition to this representation, there is also in the Museum a large model of a water-pot in stone. This comes from the Kedoe Residency, and is of the Hindu period. In the Museum "Guide to the Archaeological Collections" (No. 368) it is called a *gendi* (*i.e.* Malay *kendi*). It has a closed top, and a very short, rather widely open spout.

The antiquity of this type of water-vessel seems sufficiently well established, and it would appear that we must, probably, look to India as its country of origin, but there is some difficulty in accounting for the specimens from China. I will, however, attempt to deal with this in a little while.

In trying to find prototypes of the Javanese pottery I came across some pictures of vessels from Nepal[1] which seem to be nearly related to those from Acheh. They are of metal—probably copper or brass, though their exact material is not stated. They have fairly large feet, roughly spherical bodies, long necks, open tops, and long spouts which point upwards. One specimen has a head of the well-known fabulous Makara I believe, at the base of the spout.[2]

I think that there cannot be much doubt that this spouted type of vessel found its way from India to Java, but as I have already remarked the question of Chinese vessels of the same description presents more difficulty. Of course it is perfectly possible, indeed likely, that a water-vessel of a style which may well have been used in ceremonies connected with religious purification, found its way from India to China through the agency of Buddhist missionaries and pilgrims, and became established there.[3] I doubt, however, whether spouted water-vessels at all corresponding to those described here are commonly found in China, and it must be remembered that the Chinese, for the promotion of their export trade, especially in later times, frequently copied objects from other countries or produced articles of non-Chinese type which they thought, from their shape, or the nature of their decorations, would find a ready sale among the peoples with whom they traded. In this category comes the so-called Siam-ware,[4] and also certain

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(1) *Journal of Indian Art and Industry*, Vol. VI, Pl. 29, figs. 1 and 2.

(2) *C.f.* the Javanese Hindu-period vessel in the hand of a statue, mentioned above.

(3) Dr. Bosch, Director of the Antiquarian Survey of the Dutch East Indies, to whom I spoke about this old form of water-vessel, called it a *kendi*, saying that it was a common type in Buddhist countries.

(4) *Chinese Porcelain*, p. 173 and fig. 294.

plates and saucers with Arabic inscriptions—for sale among the Mohamedans of the East Indies—and the "Sino-Persian" ware of the Ming dynasty period.

A search through Gulland's two volumes on porcelain has resulted in my finding an illustration of only one spouted vessel which at all resembles the types from the East Indies.[1] The neck of this is long and open at the top, the spout long and shaped like that of a tea pot, the body hexagonal and having a small foot. It is described as a six-sided wine or spirit decanter.

I. H. N. EVANS.

Custom and Chanticleer

In Province Wellesley and Kedah it is not an uncommon occurrence to meet at the side of the road the remains of a domestic cock that has been flayed and spread-eagled on two sticks and so solemnly crucified. The only crime of the marauder thus held up to the gaze of his compatriots as a stern warning was to pursue his marital inclinations within the precincts of a Malay house.

For according to Malay etiquette poultry and other domestic animals that live below the house (*binatang di-bawah rumah*) must not presume on their privileged position to enter the house and indulge in such conduct as would create an atmosphere of *sial* or "nae luck aboot the hoose." So the delinquent is mercilessly chased and straightaway slaughtered and his feathered skin exposed on a cross at a *simpang tiga* or point where three roads meet. In Malacca even the unfortunate hen is sometimes beheaded and her head thrown over the house top whilst that of the cock is ignominiously hurled over the roof in the opposite direction. Outraged modesty having been appeased the *kampong* subsides into slumber.

A. W. HAMILTON.

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(1) *Chinese Porcelain*, p. 173 and fig. 294.

A Brunei Code.

Mr. G. C. Woolley, Resident of the Interior, Tenom, British North Borneo, recently sent to our Society a Romanised copy of a code of laws formerly in force under the Brunei Sultans. The original belonged to the Orang Kaya di-Gadong, Sri Lela Muhammad Hussin and was dated A.H. 1121. Chapter 19 was quoted in the course of some enquiries into native claims to fruit trees at Membakut. Various MSS copies were claimed to have been circulated as a Code among the Pangerans and ruling chiefs.

Examination proved that this Brunei Code was merely a copy of the *Risalat Hukum Kanun* or *Undang-Undang Melaka*, of which Dr. Ph. S. van Ronkel, Professor of Malay at Leiden, recently published (Brill, Leiden, 1919) a comparative text (vide note in *Journ. Straits Branch, Roy. Asiat. Soc.* 1922, No. 85, p. 232). The fact that it has been adopted *in toto* for Brunei is of interest.

R. O. WINSTEDT.

Hikayat Sultan Ibrahim.

Of the shorter version of this popular Malay tale many editions exist. The Dutch editions will be found recorded in van Ronkel's catalogue of Malay MSS. in the Library of the Batavian Society (p. 120) or in "The Encyclopaedia of Islam" (No. 24, p. 433 *sub* Ibrahim b. Adham). I have used the sixth edition of a romanized text printed in 1908 at Singapore, a reprint, I imagine, of one of the Dutch texts. The story is as follows:—

Ibrahim bin Adham, Sultan of Irak, a great and just prince bethinks himself that "this world is like a wonderful dream whereof nothing remains when one wakes." So he hands over his kingdom to his most trusty vizier. And early one morning "before the beasts have stirred after their prey, or the stars grown dim or the birds have left their nests," he leaves his palace, alone, with a staff, a knife, a beggar's bowl and a ring. He traverses forest and plain, till he comes hungry to a clear river, on whose surface a pomegranate floats. He eats half the fruit and then is startled to think he may have taken some one's property without permission. The fruit is the property of Sharif Hasan of Kufa, whose orchard is in charge of two ascetics, Shaikh Ismail and Muftihi'l-'Arifin. Dying Sharif Hasan tells his beautiful fourteen-year-old daughter, Siti Saleha, that she will wed Sultan Ibrahim who will come as a *fakir* and ask pardon for having eaten a pomegranate. He dies. Muftihi'l-'Arifin comforts the daughter by relating how the Prophet once took a friend Abdu'r-Rahman to his poor hut and finding

Siti Fatimah with only one cloth handed her his scarf; so humble was the Prophet's home in this transitory world. Sultan Ibrahim comes and asks pardon. Siti Saleha informs him the only way to win forgiveness is to marry the owner. They wed. Soon Sultan Ibrahim (telling his wife that this world is like a vile woman gaily dressed) takes leave and wanders on to Mecca. Siti Saleha bears a son, Muhammad Tahir. Folk jeer at him as a bastard. His mother lets him fare in search of his father. His father gives him his ring and bids him go to Irak, speeding him away from Mecca because love for his son makes him forget his religious duties. The son comes to Irak, where the vizier welcomes him as his father's heir. But he refuses the throne and taking only some jewels for his mother's support returns to Kufa.

There is a longer Malay recension, said to have been translated from the Arabic of a certain Hadrami *shaikh*, Abu Bakar (van Ronkel *ib.*, p. 121) It begins with an account of how Sultan Ibrahim builds a great fort and lets all his subjects inspect it to discover any flaw. At last an old man points out that it is impermanent. So the Sultan comes to give up this perishable world.

Another version is to be found in Book IV, Chapter I of the *Bustan al-Salatin* (Neimann's "Maleisch Leesboek" I p. 232), where the prince is told that there is only one fort, Paradise, which will never decay and whose people will never die.

There are Javanese, Sundanese and Achinese (Snouck Hurgronje's "The Achehnese" II, p. 184) versions. There is an Arabic romance, translated from the Turkish and a Hindustani poem on the same subject.

Ibrahim bin Adham was a native of Balkh (*obiit circa* 160 A. H.-776 A. D.). Converted to asceticism he migrated to Syria where those who saw him thought him "a madman or a camel-driver." "A trait far more characteristic of Indian and Syrian than of Muslim asceticism appears in the story that one of the three occasions on which Ibrahim felt joy was when he looked at the fur garment that he was wearing and could not distinguish the fur from the lice." In the Sufi legend, he appears as a prince of Balkh who while hunting was warned by an unseen voice that he was not created to chase hares and foxes; whereupon he abandoned the world for ascetic piety.

Historically Ibrahim bin Adham belongs to a band of Muslim devotees, who followed the simple life of the Prophet and their desert ancestors and thought much of the Day of Judgment, but seldom adopted the hermit's life. Possibly these early recluses were inspired by the example of the Christian monks of Syria directly or through the medium of the Prophet's retirement from the world. It was a hundred years later that Sufism came with its *fakir* and *darwish*, divorced from all earthly ties and possessions. The ascetic bent of the Sufis owed something to the *Zindik* of Persia, the Manichaean or Maskedite sect which secretly abjured

Zoroastrianism; something to Sabian (Mandaean) influence; and something perhaps to Buddhist missionaries, who had been active in Persia before Islam and had founded monasteries in Balkh. (O' Leary's "Arabic Thought and its place in History").

The Sufi legend of Ibrahim the hunter prince of Balkh who turns ascetic is modelled upon the story of Buddha (J. R. A. S., 1904, p. 132 seqq.). In Malay literature there are many instances of princes who give up thrones for religion. In the *Hikayat Bayan Budiman* (Winstedt, Singapore, 1920, Tale XXIII) there is the story of Sultan Adam, to whom Desire appears in the shape of a lizard and who thereupon abdicates and goes to Istambul and finally to Mecca. Rinkes quotes an historical instance, given in the *Sĕjarah Mĕlayu* (Chapter 7) and the *Hikayat Pasai* (Dulaurier p. 20) and suggests that all such cases are Islamic adaptations of the life of Buddha.

R. O. WINSTEDT.

Was Johore once named Langkasuka?

In the Singapore Free Press of March 14, 1923 the following paragraph appeared:—

"The word Lingui has been in frequent use during the past few weeks in connection with the water proposals for Singapore, but it appears that the word is incorrect, and that the correct name is Langyu, which means literally, kite and shark. It is believed that at one time at the junction of the Langyu river with the Johore river there was a royal settlement of the Sultan of Lingga, one of the Dutch islands, who had been driven out of his own country by invaders. Later he was re-established by a Bugis force."

The name, Langyu, is not to be explained by the literal methods of the amateur philologist. It is, however, connected with the bold and original theory of Dr. G. P. Rouffaer, summarized by me in this Society's Journal, No. 86, 1922, that an old name for Johore before 1450 A.D. was Ganggayu (i.e. Old Javanese *Gangga ayu* = 'fresh water') and that this is the Langka-suka of Malay legend, and perhaps the Lanka of the *Ramayana*. The "Malay Annals" (chapter 1) connects Ganggayu with Johore, and interprets the word to mean "a treasure house of jewels," which fits with *jauhar* = jewel, suggested by Rouffaer to be the origin of the name Johore.

R. O. WINSTEDT.

Arctic Amok.

In his book "The North Pole" Peary writes of the Eskimos (pp. 156, 7) :—

"adults are subject to a peculiar nervous affection which they call *piblokto*—a form of hysteria. I have never known a child to have *piblokto*, but some one among the adult Eskimos would have an attack every day or two, and one day there were five cases. The immediate cause of this affection is hard to trace, though sometimes it seems to be the result of a brooding over absent or dead relatives, or a fear of the future. The manifestations of this disorder are somewhat startling.

"The patient, usually a woman, begins to scream and tear off and destroy her clothing. If on the ship, she will walk up and down the deck, screaming and gesticulating, and generally in a state of nudity, though the thermometer may be in the minus forties. As the intensity of the attack increases, she will sometimes leap over the rail upon the ice, running perhaps half a mile. The attack may last a few minutes, an hour, or even more, and some sufferers become so wild that they would continue running about on the ice perfectly naked until they froze to death, if they were not forcibly brought back.

"When an Eskimo is attacked with *piblokto* indoors, nobody pays much attention, unless the sufferer should reach for a knife or attempt to injure some one. The attack usually ends in a fit of weeping, and when the patient quiets down, the eyes are bloodshot, the pulse high, and the whole body trembles for an hour or so afterward."

I believe that in one of his earlier books (I have not got them by me) Peary records an instance of one of his Eskimo followers actually attacking and killing a companion while in a state of *piblokto.*

In spite of the female manifestations, which closely resemble those of *latah,*[1] the Eskimo condition does not seem to have any relation to the latter as it is not brought about by suggestion or shock: it is rather akin to *amok.*

Broadly speaking there does not seem to be much in common between the Eskimos of the Arctic circle and the Malays of the Equatorial belt—but they are both Mongoloid peoples.

C. Boden Kloss.

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(1) Vide "A Contribution to the Psychology of 'Latah'" by Dr. D. J. Galloway in *Journ. Str. Br., Roy. Asiat. Soc.*, 1922, No. 85, pp. 140-150.

A Rare Petrel.

Included in a small collection of skins made at the Horsburgh Lighthouse, 33 miles east of Singapore Island, in October 1921 was a specimen of the uncommon *Oceanodroma m. monorhis* (Swinhoe) or Swinhoe's Fork-tailed Petrel.

Nagamichi Kuroda (IBIS, 1922 11th. Series, Vol. IV. No. 3 p. 439) has recently stated that this bird is only known from near Vladivostock, Japan (Prov. Mutsu, N. Hondo; Prov. Yamato, S. Hondo; Loo-Choo Is.) and coast of China (Amoy) but he has overlooked a record from Java (Semarang) given by Van Oort in 1911 (Notes Leyd. Mus. XXXIII, p. 111). Robinson and Kloss (Journ. F. M. S. Mus. 1922, Vol. X, pt. 4, p. 253) add the species to the fauna of the Malay Peninsula on a male obtained at the One Fathom Bank Lighthouse in the Straits of Malacca off the coast of Selangor in November 1918 and there are two specimens in the Raffles Museum, one, a female bird taken at Keppel Harbour, Singapore, in May 1913 by a former collector employed by the Museum and another which is the specimen mentioned above.

The authorities just quoted would furthermore extend the range to the coast of Siam and Sumatra waters (*vide* Journal Nat. Hist. Soc. of Siam, 1921 Vol. V. No. 1. and Journal F. M. S. Mus. 1918, Vol. III, pt. 2, pp. 265 and 284).

It is quite possible that *O. monorhis* occurs in Malaysian waters more frequently than is generally supposed for Mr. P. de Fontaine, the collector of the Horsburgh specimen, has given me some very interesting observations made during his short stay of a month at the lighthouse.

On October 28th when it was blowing hard from the N. E. a small flock composed of at least twelve of these Petrels came from the W. The sea was very rough and the flock, well closed up, was almost skimming the water, following the undulations of the waves. In the observer's opinion the birds were making for the shelter of the lighthouse rocks. He fired when the flock came within shot but only one bird dropped and this was immediately snapped up by a small shark.

The specimen actually obtained struck the light at 9 o'clock on the evening of October 29th and was captured alive.

The lighthouse-keepers (Malays) state that they are familiar with the species and that other specimens have struck the light on previous occasions. They have always failed to get the birds to Singapore alive.

Arrangements have now been made whereby the keepers can preserve any future specimens that come to hand and the status of the bird as a Malaysian species can probably be fixed more accurately in the near future than at present.

Mr. Koh Ah Wong the collector of the Keppel Harbour specimen now tells me that he bought it from a sailor on a boat lying in the dock at Singapore. The bird had flown on board and had been captured. The possibility therefore remains that the bird came on board before the boat entered the harbour.

The two birds in the Singapore Museum are extremely similar but differ markedly from that figured by Salvin in Cat. Birds. Brit. Mus. Vol. XXV. pl. II. which shows a bird generally brown in tone and decidedly so on the underparts, with conspicuous grey wing-coverts, and with either the inner secondaries or scapulars edged with light brown. They however agree well with the description on p. 356 (*loc. cit.*). In both specimens the under-parts are very little browner than the upper parts and only in the Keppel Harbour bird is the face at all lighter than the rest of the head. They both appear to be in good feather. There seems to be a difference in the relative lengths of the primaries in the two birds but one has unfortunately been mounted with the wings extended which prevents accurate observation. In one specimen the second long primary is distinctly tipped with buff.

It is interesting to note that both the skins retain the characteristic "petrel-like" smell.

The field-notes of the Horsburgh bird (not sexed) taken by de Fontaine are, length 205 mm., spread 490 mm., irides dark brown, beak, tarsi and toes black.

Kuroda gives the very small measurement of 141 mm. for the wing of the Yamato bird as against the 157-162 mm. of Hartert (Völ. Pal. Faun. p. 1416) and the Horsburgh bird which cannot be made less than 165 mm.

O. monorhis is not likely to be confused with any other Malaysian bird. *Oceanites oceanicus* (Kuhl), the only other small black petrel thought to occur in the Straits, has a white rump. *Puffinus leucomelas* Temm., recorded from Borneo, is a much larger bird with the underside entirely white.

F. N. CHASEN.

A Large Orang-Utan.

The following notes were made from an adult ♂ Mias or Orang-utan which was taken alive at Katoengou in Dutch West Borneo in 1922. The beast which shows indications of being an aged individual, died in Singapore in January 1923 and appeared to be so large that it was carefully measured after death. The figures taken appear in Col. A of the Table below. In Col. B the dimensions of a ♂ which died in the Jardin d' Acclimation at Paris are given but this animal seems to have been most abnormally proportioned. Beccari (1) states that a large fleshy or fatty protuberance on the crown of the head added somewhat to its stature which makes the measurement of the extended arms even more remarkable.

Measurements.

	A	B	C	D
	Feet & inches.	Feet & inches.	Feet & inches	Feet & inches
Height, crown to heel	4. 7¼	4. 7	4. 5½	4. 6
Spread of arms, between finger-tips	8. 0	8. 7½	7. 10¾	7. 11½
Length of arm, armpit to finger-tip	3. 4¾	..	3. 3½	3. 5
Length of hand	. 11½	..	. 10½	. 11½
Length of foot	1. 2	..	1. 0½	1. 1½
Breath of face	. 9	..	1. 1	. 11¼
Length of face	. 11½	..	. 11½	..
Circumference of neck	1. 10¾	..	2. 3¾	2. 2¾
,, ,, chest	3. 2½	..	3. 5½	3. 6
,, ,, arm	. 10½	..	1. 0½	1. 0½
,, ,,forearm	. 11½	..	1. 2	1. 1½
,, ,, thigh	1. 1¾	..	1. 7	1. 6
,, ,, calf	. 10	..	. 11½	. 11¾
Ear	. $1\frac{5}{16}$	..	..	..

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1. Beccari, O. *Wanderings in the Great Forests of Borneo* (1904) p. 148.

Cols. C & D are concerned with the measurements given by Hornaday (2) of the two largest of the 43 specimens collected by him in Borneo.

The above measurements of specimen A were taken very carefully by the Taxidermist at the Raffles Museum under immediate supervision and without reference to Hornaday's figures, the existance of which we were quite unaware of at the time. Beccari's record was not traced until much later. The height was taken by exactly the same method as described by Hornaday (*loc. cit* p. 405), the spread is a minimum full stretch rather than a maximum expansion. In the case of the other measurements, length of face and length of foot are the only dimensions easy to take and in which one can feel sure of getting a fair figure by the same method as used by another observer. In these main measurements it will be seen that the most recent animal slightly exceeds Hornaday's two specimens. In the case of the girth measurements the figures are smaller, but it must be remembered that Hornaday's records were taken from wild beasts shot in the prime of life and that the animal under discussion had been in captivity several months, had been ailing for a considerable time before it died and was generally badly nourished. The Mias again, is supposed from all accounts, to vary in its proportions. The author just quoted remarks:—" Some are short and thick set, and others are more slenderly built and longer limbed."

The skull measures:—

Basilar length	168	mm.
Zygomatic width	164	mm.
Mastoid width	135	mm.
Upper tooth row	68	mm.

In the girth measurements the hair was excluded as far as possible. The breadth of the face, including the callosities is in no way correlated with the size of the animal. Example D with a height of 54" is only 11¼" across the face. C which is half an inch less in height runs to 13" on the face whilst A, the largest of the three beasts spans only 9". I have, on several occasions, seen much smaller animals with more prominent cheeks in Singapore.

Considerable doubt and extravagant ideas formerly existed as to the size which adults of this Ape attained, but Wallace (3), who himself examined seventeen freshly-killed Orang-utans critically surveyed the subject and concluded by fixing 4' 2" as the height allowable for the species under reliable evidence but this was just too low for Hornaday collected no less than 7 which exceeded this figure. Kelsall (4) also records a specimen with a height of over 4' 2" and another with a supposed height of 4' 7" and span of

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2. Hornaday, H. T. *Two years in the jungle* (1885) pp. 375 and 406.
3. Wallace, A. R. *The Malay Archipelago* (1872) p. 63 (4th Ed.)
4. Kelsall, H. J. *Journ. Str. Branch, Roy. Asiat. Soc.*, No. 24 (1891), p. 168.

Head of large Orang-Utan from Borneo.

8′ 10″ is recorded in *Journ. Str. Branch, Roy. Asiat. Soc.* No. 10 (1882) p. 181. (As an instance of how erroneous records can be circulated in all good faith, it may be mentioned that the animal recorded herewith was always estimated by the owner to span 15′ across the arms!).

Skin and Hair.

On all parts of the body the skin dark slatey black. Dorsally, thickly clothed with hair; ventrally, the armpits and chest (except on the mid-ventral line on which there is a scanty growth of hair) almost bare. On the groins the pelage very thin; the throat well covered. The crown covered with thick but comparatively short hair. The hairs on the forehead directed upwards, much shorter and finer. Well developed tufts forming a moustache on the sides of the upper lip, this moustache confluent with a well developed beard on the chin. Excluding individual or loose hairs the beard measures 5½″ to 6″ in length.

Hair longest on the thighs, arms (9-12″) and shoulders (14″); shortest on the back and abdomen.

Two distinct colours apparent in the pelage, a dark sienna and a light reddish-golden. The dark colour extends over both sides of the trunk and on the crown and throat. The light colour on the limbs being lighter on the upper sides and most so on the forearms and hands. The hands the lightest part of the body, the crown and throat the darkest.

The above facts are scarcely in agreement with Hornaday's otherwise very admirable description (*loc. cit.* p. 400 *et seq.*) in which he states that the face and throat are quite bare except for a scanty beard of uncertain length in adult specimens, its longest hairs never exceeding four inches.

The two photographs represent the head of the individual forming the main subject of this paper. They were taken from the flesh and illustrate the comparative luxuriant growth of hair on the chin and upper lip which is not usual.

F. N. CHASEN.

Early stages of a Danaine Butterfly.

In his "Notes on Malaysian Butterflies" published in the *Journal of the F. M. S Museums*, 1921, Vol. X. p. 162 Major J. C. Moulton, Director of the Raffles Museum, Singapore, comments on the remarkable fact that the life-history of the common Danaine *Ideopsis daos* is still unknown.

Fruhstorfer in Seitz's *Macrolepidoptera of the world* (*Fauna Indo-australica*) 1910, p. 216, surmises that the larva and pupa of *Ideopsis* when found will resemble those of *Radena* rather than of *Hestia*, with which the general appearance of the imago suggests affinity.

Piepers in *The Rhopalocera of Java*: Danaidae 1913, p. 23, pl. xiii. figs. 17c, 17d, describes and figures the larva and pupa of the allied Javanese species *I. gaura* Horsfield, and thereby proves the correctness of Fruhstorfer's surmise. The green bell-shaped or squat trunk-like pupa, with small black dots is very like *Radena* pupae and in marked contrast to the elongate *Hestia* type. The larva similarly agrees with *Radena* larvae in having but two pairs of fleshy processes instead of four, one from the 2nd thoracic segment directed forwards over the head, while the other pair is smaller and arises from the penultimate segment. The larva of *Ideopsis* however approaches *Hestia* in the simple colour pattern of yellow or red rings on black, in place of the rather complicated spotted pattern of *Radena* larvae.

I was fortunate enough to secure the larva of *I. daos* at Lebong Tandai, West Sumatra. The following notes may therefore be of interest in view of the fact that the larva and pupa of this species have not been described before. Major Moulton identifies the imago as *I. daos eudora* Fruhst., which is confined to West Sumatra.

Larva. In form cylindrical, slender. When mature the segments are coloured broadly black with a series of narrower light yellow and red rings. (Piepers describes the larva of *gaura* as "velvety black with a milky white transverse band on each segment"). On either side of the head there are slender tufts of red hairs (pencils), also at the extremity of the abdomen, but smaller. (In *gaura* Piepers says these processes are black, but red at the base).

It was feeding freely, without apparent attempt at concealment on a pepper-like vinous herb.

Pupa: Squat, trunk-shaped, light green with few black spots variously distributed frontally, two only occurring at the back below the cremaster. On the seventh segment which is the widest part of the pupa there is a row of ten black spots placed in a silver band between the wing plates. (Piepers mentions eight in *gaura*).

Imago. Emerges after about ten days at 8 a.m. Flies at noon. Although this insect is common at Lebong Tandai, it is not by any means abundant. I find from the capture of 25 specimens in 18 months that the ratio of males to females is as 1: 4.

The monthly record of captures in 1921 is as follows:—

May	Females	2	Males	-
June	„	1	„	-
July	„	5	„	-
September	„	1	„	-
November	„	-	„	1
December	„	2	„	1

There seems to be little or no variation in marking between the specimens other than sex distinction, and no seasonal difference.

I desire to express my thanks to Major Moulton for his kind assistance in preparing this note for publication.

CECIL J. BROOKS.

Reviews.

The Singapore Naturalist.

(Singapore: Methodist Publishing House. July 1922, Vol. I. pp. 1-80, price $2.00).

We welcome the appearance of the first number of this publication which is produced by the Singapore Natural History Society. It meets a long-felt want. Local natural history is the theme, and it would be difficult to find a more delightful subject for serious study or for recreation in a rich tropical country such as this.

The Society was founded in May 1921. It has for its objects (i) the development of friendly intercourse between local Naturalists, (ii) the increase and diffusion of knowledge concerning local Natural History by means of papers, discussions, exhibition of specimens, field excursions, formation of collections, purchase of periodicals and publication of transactions. An ambitious programme perhaps in this climate, where the well-intentioned endeavour of an energetic few so soon succumbs to the apathetic "support" of the many. However a membership list of 66 shows that the Society in the first year of its existence has made a promising start. The account of the various excursions indicates that everybody's interests are catered for. The varied exhibits shown at the meetings and the wide range of subjects dealt with in the papers communicated to the Society demonstrates in an emphatic manner that the members are determined to make their Society an unqualified success.

With the marches of civilization the jungles of Singapore and their denizens are fast disappearing. This Natural History Society will do well to place on record all they can before it is too late.

"The Singapore Naturalist" devotes some 27 pages to the Proceedings of the Society. In his inaugural address in August 1921 the President, after dwelling on the objects of the Society, outlines a wider field of work which the Society should bear in mind, such as collecting animals for the London Zoo, keeping in view the possibility of forming a local Zoo in Singapore in the not too distant future; the compilation of a local Fauna, beginning with a list of Singapore birds; the protection of wild animals in this country.

The history of botanical research in this part of the world is reviewed in a comprehensive sketch by Mr. I. H. Burkill, Director of the Botanic Gardens, Singapore, showing that the botanical side of the Society is not to be neglected.

A summary of the poisonous snakes of Malaya is given in the Proceedings, followed by interesting notes on such subjects as

Weaver Birds' Nests, Long-horned Grasshoppers, Reptiles' eggs, Cicadas, a destructive weevil, the Yellow-bellied Giant Squirrel, Butterflies, and an albino Kingfisher.

These notes are very readable and form an attractive feature.

The second half of "The Singapore Naturalist" is devoted to Transactions, comprising five papers, of which we may notice an interesting account by Mr. C. L. Collenette of the life-history of a butterfly (*Atella phalanta*) and notes by Mr. V. H. C. Jarrett on acclimatisation experiments with a common snail (*Helix aspersa*), both valuable contributions and of a type which will do much to justify the birth of yet another periodical in this somewhat overloaded world of scientific literature. Mr. Chasen, the Honorary Secretary of the Society, contributes a very useful "A. B. C. of Preserving Animals." Simple directions for collecting, skinning, preserving are given. He very rightly emphasizes the importance of labelling every specimen. Too often is the heart of a Museum Curator or specialist broken by the entire absence of any data on some most interesting specimen. Locality and the date of capture are the first two essentials without which any specimen may be regarded as valueless, and, worse in the case of a rare species, it becomes a continual source of irritation to those who examine it. Measurements in the flesh, colour notes, and any observations as to habits etc. are of course also very desirable, particularly in a country such a Malaya where there is yet so much to learn about even our commonest friends of the jungle,—be they elephant, ant, snake or snail.

Of a totally different nature is a paper by Dr. G. E. Brooke entitled "The identification of Malayan Culicidae." The first four pages deal with the collection and preservation of Mosquitoes and no doubt will be read with interest by many besides the Members of the Singapore Natural History Society. The second part of the paper provides a dichotomous "Table for the diagnosis of the Female Culicidae of Malaya." Colour differences, rather than structural characters have been utilized. A diagram to show the parts of a mosquito, indicating the terms used for different parts (e.g. palp, scutellum, tarsus, tibia, abdominal segments etc.) would have been of use, and an explanation of words such as "labellae," "tenuiform" is needed.

The style of the remainder of "The Singapore Naturalist" forms a particularly successful compromise between the indigestible type of matter which fills so many scientific journals and the somewhat verbose pot-boilers published as "Nature Notes" in the newspapers.

So long as this principle is kept in view "The Singapore Naturalist" will find many readers, and the members of the Singapore Natural History Society may congratulate themselves on adding many valuable contributions to our knowledge of local Natural History.

J. C. M.

Malay Poisons and Charm Cures.

(2ND ED.) BY J. D. GIMLETTE, M.R.C.S., L.R.C.P. (London: J. & A. Churchill 1922, pp. i-xii, 1-260).

The publication of this book carries one back to the days of those learned physicians, John Leyden (the friend of Sir Walter Scott and Raffles), who translated the "Malay Annals," and John Crawford, firstly army surgeon, and later Resident of Singapore, the author of many notable works on Malay subjects. After their time there was no work dealing with any Malay ethnographical topic from the pen of any English doctor until Dr. Gimlette first published this book.

This second edition is so expanded that it is in effect a new work and a work of signal interest and value. Of the merits of the purely scientific side of the book I have not the knowledge to speak nor is this Journal the place to dilate on them. It will suffice to quote from the introduction by that distinguished expert on poisons, Sir William H. Willcox:—"the work which, during a period of long and painful illness" (contracted in the course of his official duties in Kelantan) "Dr. Gimlette so bravely completed forms a very valuable addition to our knowledge of Medicine and Toxology. The Government of the Federated Malay States is to be congratulated on its wise policy in giving support to the publication of this work, which is a piece of research leading the way to discoveries of importance in modern medicine." The patient labour involved in the collection and identification of animal, plant and inorganic poisons must have been enormous.

The first 109 pages contain what is probably the most fascinating and important account of the Malay "medicine-man" that has appeared from any English pen since Skeat published his "Malay Magic." Dr. Gimlette has been fortunate in unearthing Kelantan charms to illustrate the often heterodox pantheism, which the Malay *pawang* borrowed first perhaps from Hinduism and directly in the xvith century from the Sufism of Indian Muslim pundits. He notes correctly (p. 60) that some of the charms are derived from that Javanese source, on which H. Kraemer has lately written so valuable a paper (p. 99). All such charms are corrupt and difficult to translate and no doubt the specimens given will in time invite further study and elucidation. There are some misprints and a few mistranslations and pretty obvious corruptions of words. For *Angin Tanar Masshur* (p. 244) "Wind of Tanar the renowned" (p. 78) should certainly be read *tanah* and, I think, *Mahshar* "the plain of the Day of Judgment." In the same charm the translation hardly makes it clear that to the crude pantheism of the Malay the 4 stages to gnosis (*shariat, hakikat, tarikat, ma'rifat*) find their analogy in 4 component parts of the human frame. On p. 72, note 4, most of the words, at any rate, are Arabic and are used of "worlds" in the scheme of the Muslim mediaeval cosmogony, for which To' Drahman again found "seats" (*makam; astana*) in the animal world. *Zabrut* = *'alam jabarut*, the world of almightiness, wherein lie hidden the processes of the Divine nature intimated in the attributes and names of God; *nasud* = *'alam nasut* the outward material world; *mĕlukut* = *'alam malakut*, the invisible intelligible world. According to a Javanese account, quoted by Kraemer, the *'alam nasut* is situated in the eyelid or in the *'akl*, the *'alam malakut* in the white of the eye or in the *iman*, the *'alam jabarut* in the black of the eye or the *ruh*, and the *'alam lahut*, the divine spiritual world in the light of the eye or in the *rahsa!*

The doctrine of the 4 elements or natural properties (pp. 29-30) is explained at length in the *Taju's-Salatin*, a Malay classic of the beginning of the XVIIth century:—*tĕlah di-jadikan kĕadaan manusia itu daripada ĕmpat pĕrkara, yang bĕrlainan pĕri-nya, dan di-katakan anasir arba' nama-nya, dan suatu daripada ĕmpat pĕrkara itu mĕlawan akan sa-suatu, sapĕrti tanah dan ayer dan angin dan api; dan kĕĕmpat pĕrkara itu ada-lah kĕadaan sa-sa-orang manusia sa-lama ada-nya itu ada, dan pĕri kĕĕmpat pĕrkara itu, yang ada pada kĕadaan sa-sa-orang manusia, ada-lah bĕrlain-lainan sĕntiasa pada sĕgala manusia jua, tiada dĕngan ikhtiar-nya sahingga tiada ada ia dĕngan sĕntosa sa-lama hidup-nya; karna Tuhan Allah brikan dalam tuboh sa-sa-orang manusia bĕbĕrapa pĕrkara, yang suatu daripada itu mĕlawan akan suatu dĕngan pĕri-nya dan dĕngan khasiat-nya...Jikalau pĕri sĕgala pĕrkara itu sĕdang-lah pada tuboh manusia dan tiada kurang tiada lĕbeh, maka dĕngan sehat dan sĕntosa tuboh manusia itu; hanya jikalau bukan sĕdang itu dan ada-lah kurang atau lĕbeh, maka bagai-bagai pĕnyakit datang pada tuboh manusia dari sĕbab ini.* Health consists in the preservation of " the balance of power " between the four natural properties in the human body.

One notes that Kelantan folk-lore wrongly makes Asaf the father instead of the son of Barakhya (Encyclopaedia of Islam, No. VIII, p. 476, *sub* Asaf).

Dr. Gimlette has introduced the reader to a field almost untouched by students of the Malay Peninsula. Incidentally his book is enriched with exhaustive references, several appendices and an index. It is to be regretted that so few officers posted to States remote from modern influences have followed the author's painstaking and scholarly example. Not only have his studies added much to our knowledge of things Malayan: during his stay in the East they endeared him greatly to those to whom he gave a life's work and a limb.

R. O. W.

British North Borneo: An account of its history, resources and native tribes.

BY OWEN RUTTER. (London: Constable and Co., Ltd., 1922, pp. i-xvi, 1-404, price 21*s*.).

Major Rutter has given us a very full and very interesting account of North Borneo. The subject matter of his book is one which makes a special appeal to residents in North Borneo but the author's style is so readable and, while fully informative, he avoids so successfully the heavy scientific air of so many writers on backward races that even the man who first learns that the State of North Borneo exists when he picks up the book will enjoy reading it.

The chapters on the history and geography of the country fill a distinct want. Major Rutter has had full access to official records and has compiled the first connected story of the brief history of the State, a story which covers comparatively speaking only a few years but is not lacking in incident. Geographical knowledge of Borneo is still incomplete; as yet no complete survey of the country has been made but it has been traversed by District Officers and rough surveys made with chain and compass, and the courses of river have been plotted by the inaccurate but often exciting method of watch and compass from a raft. The records of the Survey Office include valuable contributions by Major Rutter himself, who knows the weariness of making miles of chain and compass traverses on a zigzag bridle path in the heat of the day, as well as the delights of shooting down the rapids of a river in flood.

North Borneo has suffered and probably will suffer again from that type of author who is prepared to write a 600-page book on the country after a stay of twelve hours on a passing steamer, but Major Rutter knows his subject thoroughly. He spent five years in the Civil Service, all on outstation work, and after the war has had practical experience of a planter's life. The outstation officer has unique opportunities of learning the customs of his natives. It is his duty to study them, and the successful District Officer is a man to whom this duty is particularly interesting. One cannot gain the confidence of natives or hold the scales of justice evenly between them until one has more than a superficial knowledge of their tribal conventions. The customs of each tribe differ considerably in details and it would be a bold man who would boast that he had a thorough knowledge of all. Major Rutter has gleaned his information from many sources and sifted it carefully in the light of his personal knowledge, and he has made few mistakes. Some inaccuracies are there—it would be indeed almost impossible to compose so detailed an account of a country and its peoples with no errors whatsoever—but they relate to minor matters and the book is an admirable piece of work which can be strongly recommended both to the few who desire authoritative information about North Borneo and to the many who merely desire to read a well written account of an interesting and little known country. The photographs are excellent and one could wish for more of them.

C. F. C. M.

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Description de quelques nouveaux Cercopides de la faune Indo-malaise.

par le Dr. V. Lallemand.

Moultoniella nov. gen.

Vertex déclive, plus large que long, bords latéraux arrondis, bord antérieur de la partie frontale du vertex droit vu d'en haut. Ocelles petits, un peu plus rapprochés l'un de l'autre que des yeux, ceux-ci sont gros, saillants; sous la partie frontale du vertex se trouve une grande fossette triangulaire, dont la direction générale, vue de côté, est perpendiculaire sur le bord inférieur du front, ce dernier est allongé, transversalement bombé dans le sens de la longueur il déssine une ligne droite perpendiculaire à la fossette décrite précédemment, il est lisse, brillant, à la partie antérieure quelques stries obliques (5-6). Le clypeus continue la direction du front: antennes situées au devant des yeux, entre ceux-ci et la fossette antèrieure du front. Pronotum long, déclive dans les 3/4 antérieurs, 1/4 postérieur plan. Ecusson creusé d'une grande fossette médiane et de deux petites situées près du bord antérieur.

Un peu plus de la moitié antérieure des élytres opaque, le restant est translucide et réticulé: médian et cubitus se réunissant en un tronc commun sur le tiers antérieur du corium, deux nervures anales sur le clavus. Ce genre est surtout caractérisé par la forme du front.

Habitat: Presqu'ile de Malacca.

Type du genre: *Moultoniella bipars.*

Je dédie ce genre à Major Moulton directeur du Musée de Singapore.

Moultoniella bipars n. sp.

Tête, pronotum, écusson, prothorax ocre-brun, légérement teinté de rougeâtre, surtout sur le vertex et la partie antérieure du pronotum, celui-ci vers son bord postérieur devient généralement plus brun, front de teinte plus claire; méso et métathorax, rostre, partie antérieure des élytres noir-brillant; base des élytres et une tache près du bord costal à l'extrémité du premier tiers, rougeâtre ou jaune rougeâtre. La partie postérieure hyaline est légèrement jaunâtre immédiatement en arrière de la partie coriace et près du bord externe. Cuisses antérieures jaune-rouge (sauf l'extrémité inférieure, noire), cuisses médianes rouge-brun; tibias et tarses antérieurs et médians, cuisses postérieures, noires; tibias postérieurs jaunes sur les 2 cinquièmes supérieurs, noirs sur le restant, ils portent une épine au commencement du tiers inférieur.

Habitat: Perak (musée de Paris), Gunong Kledang, Perak, Gurun, Kedah (decembre 1915), Sarawak (février 1915) (musée de Singapore).

Type: collection des musées de Paris, de Singapore et la mienne.

Phymatostetha selangorina n. sp.

Tête, pronotum, écusson, élytres noirs; un triangle sur le front et les bord látéraux du vertex ocre-brun; bord antérieur, très étroitement, et latéro-antérieurs du pronotum, une étroite ligne le long du bord interne du clavus s'étendant jusqu'au niveau du milieu de l'écusson, 2 bandes transversales dont la seconde est ondulée, une bande située le long du bord externe, assez large jusqu'à la première bande transversale, puis se rétrécissant, devenant linéaire et s'étendant jusqu'à la deuxième bande transversale, ainsi qu'une tache ronde à la partie apicale, ocre-jaune sale; extrémité ocre-brun; ailes enfumées. Clypeus ocre-jaune, à extrémité noire; premier article du rostre ocre-jaune, le deuxième est noir; thorax et face inférieure de l'abdomen ocre-jaune à taches noires, sur chaque segment 3 taches; face supérieure de l'abdomen noir-bleuâtre; cuisses ocre-brun, sur chaque face une ligne noire; tibias ocre-brun, noirâtres aux extrémités et aux épines; tarses noirâtres; ailes enfumées.

Tout l'insecte est revêtu d'une villosité dense. Pronotum densément et grossièrement ponctué, rugueux ayant une fine caréne médiane, longitudinale. Les tibias postérieurs ont deux fortes épines. Protubérances du mésothorax fortes, coniques, bord postèrieur légérement foliacé.

Cette espèce se distingue à première vue par la coloration des bandes, par sa taille et les protubérances du mésothorax des *Phymatostetha circumducta* Walk. et *Ph. borneensis* Buller.

Variété: Les bandes transversales et la ligne du clavus peuvent disparaître presque complètement.

Longueur totale: 18 mm., du corps: 13 mm., des élytres: 14.5 mm.; largeur des élytres: 15.5 mm.

Habitat: Bukit Kutu, Selangor, avril 1915, la variété provient de Semangko Pass (mars 1917).

Type: collection du Musée de Singapore et la mienne.

Opistarsostethus humilis n. sp.

Tête, pronotum, écusson, élytres, prothorax et pattes ocre-jaune. La partie réticulée des élytres est translucide; méso et métathorax, extrémité du rostre, extrémité des tibias et des tarses antérieurs et médians, tarses postérieurs en entiers, bruns; abdomen ocre-jaune, légérement teinté de rougeâtre; 4 grosses taches noires sur les élytres, la première à peu près sur le milieu du clavus, la deuxième à la fin du tiers antérieur et au milieu de la largeur du corium, les deux autres au devant de la partie reticulée l'une près du bord costal, mais ne l'atteignant pas, l'autre près de l'extrémité de la suture clavo-coriale. Ocelles très légérement plus près des yeux que l'un de l'autre. Pronotum densément et finement ponctué en stries plus ou moins transversales, voûté, à caréne médiane, nette s'étendant jusqu-au bord postérieur, celui-ci est à peu près droit, bords latéro-postérieurs concaves, angles latéraux saillants arrondis. Ecusson transversalement strié, à fossette médiane en partie couverte par le bord postérieur du pronotum. Sur le corium, médian et cubitus réunis par un rameau transverse; protubérances thoraciques aplaties, inclinées en avant et plus basses que le bord postérieur foliacé.

Ressemble à *O. globosicollis* Schmidt, s'en distingue par la couleur de l'abdomen, la taille.

Longueur totale: 15 mm., du corps seul: 11 mm., des élytres: 12 mm.; largeur des élytres: 4 mm.

Habitat: Gurun, Kedah (novembre 1915).

Type: collection du Musée de Singapore et la mienne.

Homalostethus parvus.

Tête, pronotum ocre-brun, face canelle; écusson brun-noirâtre; moitié basale des élytres ocre-brun, moitié âpicale translucide, ocre-jaune devenant progressivement plus claire en allant vers l'extrémité; une bande noir-brunâtre le long de la moitié antérieure du bord costal, arrivé au milieu de celui-ci, elle se coude à angle droit et s'élargit, s'étend jusqu'au secteur médian; en face, au bord interne au niveau de l'extrémité de la seconde nervure anale, une tache de même couleur, thorax noir, sauf les côtés qui sont ocre-brun; abdomen noir légèrement bleuté, son dernier article, les organes génitaux, le rostre et les cuisses antérieures ocre-jaune; les autres cuisses sont ocre-brun, et les tibias brun-noirâtre; toute la surface supérieure est recouverte d'un fin duvet jaunâtre. Pronotum finement ponctué et portant une carène médiane, n'atteignant pas le bord postérieur, celui-ci est concave, les angles latéraux sont fortement arrondis. Sur les élytres, le médian et les cubitus sont réunis par une nervure transverse. Sur le mésothorax pas de protubérance, mais un bourrelet transversal, son bord postérieur n'est pas foliacé. Une forte épine sur les tibias postérieurs.

Longueur totale: 11 mm., longueur des élytres: 8 mm.: largeur de ceux-ci: 3 mm.

Habitat: Gurun, Kedah (décembre 1915).

Type: collection du Musée de Singapore et la mienne.

Leptataspis moultoni n. sp.

Voisin de *Leptataspis costalis* Schmidt.

Tête, pronotum, bords du prothorax, une large bande le long du bord externe des élytres s'étendant jusqu'à la partie réticulée âpicale, base du clavus, rouge-carmin; sur le pronotum 2 à 3 taches dans les fossettes situées en arrière du bord antérieur; écusson, élytres noirs; pattes antérieures et médianes rouge-brun, les postérieures plus foncées; ailes enfumées, brun-foncé, à extrême base rouge; rostre, thorax brun-rougeâtre, bord postérieur foliacé du mésothorax rouge-carmin; abdomen noir-bleuâtre.

Tête et pronotum brillants, ce dernier densément ponctué, très légèrement rugueux, à carène médiane faible et visible seulement sur la partie antérieure, à bord postérieur convexe. Se distingue de *L. costalis* Schmidt, par la différence de coloration de la tête, de l'écusson et de la bande du bord costal.

Longueur totale: 18.5 mm., des élytres: 15 mm., du corps seul: 14 mm.; largeur des élytres: 5.5 mm.

Habitat: Siam, Nakon Sri Tamarat, Ronpibun, Khao Ram, Khao Luang; Kedah Peak; Kuala Tahan, Pahang; Semangko Pass, Selangor-Pahang boundary.

Type: collection du Musée de Singapore et la mienne.

Leptataspis perakensis.

Tête et écusson noir-brun et brillants; pronotum brun-noir, à reflets métalliques et fort brillant; pro et mésothorax bruns. Rostre, pattes et abdomen ocre-jaune; extrémité du rostre et épines brunes; antennes jaune-brun; ocelles jaunâtres; yeux gris. Les trois premiers cinquièmes de la longueur des élytres brun-jaune sale, réseau apical de nervures brun-jaune avec une lègére teinte rougeâtre; base des élytres, bord interne du clavus, suture clavo-coriale, bord costal, les 2/5 postérieurs, radius, une tache plus ou moins arrondie à la bifurcation du médian et du cubitus ainsi qu'une ligne partant de cette tache et s'étendant jusqu'à la partie apicale, bruns. Ailes enfumées. Ocelles un peu plus près l'un de l'autre que des yeux. Tête vue de face un peu plus étroite vers l'extrémité qu'à la base. Pronotum très finement ponctué en rangées plus ou moins transversales, à bord postérieur très légérement concave.

Ecusson plus long que large à sa base, transversalement strié, creusé en fossette sur le disque. Une très forte épine à la base du tiers apical des tibias postérieur.

Longueur totale: 16 mm., du corps seul: 12 mm., des élytres: 13.5 mm.; largeur des élytres: 5 mm.

Habitat: Perak.

Type: collection du Musée de Singapore et la mienne.

Leptataspis médanensis.

Voisin de *L. fuscipennis* St. Fargot et Serville.

Elytres brun-foncé, clavus et tiers basal du corium plus clairs, teintés de jaunâtre, nervures du clavus et son bord interne jaune-foncé, base de l'élytre et bord costal jusqu'au réseau apical étroitement, jaunes; écusson brun-jaunâtre; tête, pronotum jaunes, sur le pronotum, un ou deux points bruns dans les fossettes situées en arrière du bord antérieur; cotés du front légèrement foncés; yeux bruns; ocelles hyaline; thorax, pattes, abdomen brunâtres, sauf le bord folliacé du mésothorax qui est jaune.

Tête et pronotum luisants, le dernier est large, finement ponctué, il porte une carène médiane nette ne s'étendant pas jusqu'au bord postérieur, celui-ci est arrondi, relevé et au devant de lui se voit un sillon en forme d'une gouttière, les bords latéro-postérieurs sont concaves.

Comme coloration ressemble quelque peu au *Leptataspis borneensis* Schmidt, mais s'en différencie surtout par la forme du pronotum.

Longueur totale: 18.5 mm., des élytres: 15 mm., du corps seul: 13 mm.; largeur des élytres: 5.5 mm.

Habitat: Sumatra, Médan (Sept. 1921).

Type: collection du Musée de Singapore et la mienne.

Longueur totale 11.5 mm., du corps 8 mm., des élytres 9.5 mm.; largeur des élytres 3.5 mm.

New Brenthidae from the Raffles Museum, with remarks on the Brenthid Fauna of the Malay Peninsula.

BY R. KLEINE (STETTIN).

Major Moulton, Director of the Raffles Museum, has kindly sent me a collection of Brenthidæ for identification. The collection does not comprise many species, but includes some very interesting novelties. I have added a list of all Brenthidæ known from the Southern part of the Malay Peninsula, as none has so far been compiled, and as in recent years the number of new genera and species has considerably been increased. Dr. Hanitsch has kindly supplied an English translation of my manuscript.

TRACHELIZINI.

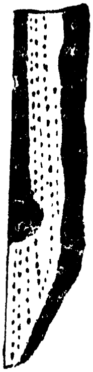
Hypomiolispa demissa n. sp.

♀. Uniform black, only the elytra, with the exception of certain parts, brick red; the whole body strongly shining. Head broader than long, broad behind, with triangular incision, above unevenly raised, with deep, narrow furrows, in front of the eyes pit-like depressed and continued into the furrow of the rostrum, with scattered punctures, inside those punctures slightly pilose, sides of the head above the eyes without groove: underside smooth, not punctured, below the eyes and the gular groove felt-like pilose, hind edge with 3 teeth. Eyes spherical, distant by their half diameter from the hind edge. Metarostrum stout, conical, broadly furrowed, the furrows dull, shagreened, sculpture very slight, mesorostrum humpy, raised, with narrow furrows, laterally wider, prorostrum at least twice as long as the metarostrum, with blunt edges, without furrow, with scattered punctures, underside below the mesorostrum narrow, with short carina. 1st joint of the antennæ conical, 2nd transverse, 3rd conical, 4th to 8th transverse, cylindrical, 9th and 10th strongly elongated, but not broadened, roughly square, 11th as long as the 9th and 10th together, all joints loosely joined, from the 9th with dense under-pilosity and with narrow, longitudinal sculpture. Prothorax more strongly constricted at the neck than on the posterior edge, furrow deep, continuous, punctures of the basal half deep, the punctures not touching each other; the punctures decreasing towards the neck, sides above the coxæ punctured as on the upperside, otherwise without punctures.—Elytra at their insertion rounded off, sutural furrow not latticed or punctured, all other furrows latticed. Suture and 1st rib as far as the postmedian macula black, outer edge from the 7th to 10th rib also black, ribs delicately punctured.—Legs normal.—Prosternum in front of the coxæ coarsely punctured, otherwise unpunctured, mid-coxæ with coarse punctures all round, metasternum slightly furrowed, only at the sides with coarse punctures, otherwise smooth, 1st and 2nd abdominal segment flattened, not properly furrowed, cross suture between the 1st and 2nd segment at the sides deep, sculpture as upon the metasternum, 3rd and 4th segments of equal size, strongly punctured, 5th the same, strongly pilose at its posterior edge.

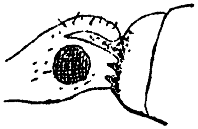
Total length 11 mm.; width (prothorax) 1.8 mm.

Hab. Bukit Kutu, Selangor, 3457′ (R. Hanitsch, April, 1915).

Besides *H. nitida* Kleine, there is no species with such a high sheen of the whole body. In habit it approaches nearest *trachelizoides* Senna. The differences are: entirely black, with the exception of the red elytra, elytra differently marked, no vittæ, head and rostrum very faintly punctured, scattered punctures on the thorax, none on the neck, hind edge of the sides of the neck behind the eyes with 3 teeth, teeth short. In consequence of the high sheen the species has a quite peculiar appearance so that one might take it for a different genus, but this is not the case. The highly shining *nitida* belongs to my section 1 (see "Die Gattung *Hypomiolispa.*" Ent. Blätter, 14, 1918, p. 70 ff).



Markings of the elytra.



Lateral view of the head.
Fig. 1.

Hypomiolispa demissa.

ARRHENODINI.

Stratiorrhina concors n. sp.

♀. Uniform black, dull, ornated with orange red.—Head slightly wedge-shaped, with shallow furrows, scattered punctures, within the punctures a closely applied pile, sides and underside very coarsely punctured and pilose. Eyes more than their diameter removed from the hind edge of the head.—Metarostrum furrowed, furrows deeper towards the mesorostrum, sculpture the same as on the head, mesorostrum humpy, 3—furrowed, slightly sculptured, prorostrum thread-like, above with wart-like sculpture.—1st antennal joint large, club-like, 2nd scarcely longer than broad (not stalked), 3rd longer than the 2nd, cone-like, 4th to 8th cone-like cylindrical, distal joints more cylindrical, 4th and 5th longer than the neighbouring joints, 6th to 8th about equally long, 9th and 10th cylindrical, 9th longer than the 10th and 8th, 10th scarcely longer than the 8th, terminal joint long, anteriorly conical, shorter than the 9th and 10th together. All joints standing loosely, thickly pilose, from the 9th onward with under-pilosity.—Prothorax without furrows, on the neck and on the posterior edge coarsely punctured, otherwise only with much scattered fine punctures, within the punctures with close pile.—Elytra broader than the prothorax, base almost straight, posterior corners with sharp spines, or only bluntly pointed, with latticed furrows. Position of the ornate markings: at the base a somewhat long stripe on 3 and 9, a short point-like one on 5, antemedian an ascending vitta, connected with the posthumeral, postmedian a vitta from 2 to 7, apical on 2, 3, 7, 9. The markings differ somewhat in consequence of the deep lattice-like sculpture.—All legs punctured, pilose, hind coxæ at the base laterally compressed.—Metasternum delicately furrowed, near the abdomen with a pit-like depression. 1st and 2nd abdominal segments not furrowed, everywhere with fine punctures and closely pilose, 3rd to 5th segments at the sides with dense pile.

Total length 24 to 28.5 mm.; width (prothorax) 4 to 4.5 mm.

♂. Head behind with shallow triangular furrow, otherwise without furrows. Prorostrum with 6 pairs of teeth, anteriorly increasing in size and, with exception of the terminal tooth, directed forwards, terminal tooth placed laterally, 9th antennal joint longer than broad, metasternum, 1st and 2nd abdominal segment delicately, but distinctly furrowed.

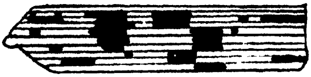


Fig 2. Markings of the elytra.

Length 29 mm., width 3.8 mm.

This new species is most closely allied to *major* Calabresi, but can at once be recognized by its black ground colour. The head is not furrowed, the 2nd and 3rd antennal joints are not of equal length, as in that species, but the 2nd is cylindrical, and the 3rd much longer than the 2nd. The succeeding joints do not increase in length anteriorly, but are of equal length up to the 8th, and only the 5th is longer than all the others, with the exception of the 11th.

1 ♂, 3 ♀ ♀ in Raffles Museum, 3 ♀ ♀ in the British Museum (♂, ♀ types also there).

All from Perak.

BELOPHERINI.

Heteroblysmia vittata Calabresi.

(Bull. Soc. Ent. Ital. LIII, 1921, p. 65).

Only the ♂ of this species had so far been known, and I found the ♀ in the present collection. It agrees with the description in all details and differs only by the filiform prorostrum.

Total length 17.5 mm.; width (prothorax) 3.2 mm.

Hab. Ulu Akar, Sarawak, November 1914, coll. J. C. Moulton. Type in the British Museum. (ex Raffles Mus.).

ITHYSTENINI.

Diurus deruptus n. sp.

♂. Head behind straight, not furrowed, arched, sloping at the eyes.—Metarostrum before the eyes furrowed, otherwise without furrow, mesorostrum with shallow median furrow, lateral furrows deep, prorostrum short.—1st antennal joint large, club-like; 2nd slightly longer than broad, 3rd to 7th conical, slender, distally nodose thickened, the 3rd the longest of all, distally decreasing in length, 1st to 7th light in colour, with scattered hairs, 8th very short, scarcely longer than the 2nd, cylindrical, dark brown with thick under-pilosity, 9th and 10th cylindrical, about as long as the 4th, 11th nearly as long as the 9th and 10th together, these joints dark brown like the 8th, densely pilose, 8th to 11th closely joined.—Spines on the elytra short, far apart.—Legs normal.—Metasternum not furrowed, 1st and 2nd abdominal segments flat and broadly furrowed.

♀ prorostrum as long as the metarostrum, shining brown, antennæ as in the ♂, only stouter, spines of the elytra short, abdomen not furrowed.

Total length ♂ ♀ 18 mm.; width (prothorax) 2.8 mm.

Hab. Sarawak, June 1892. Types in the British Museum (ex Raffles Mus.). Differs by the form of the antennæ from all other species known to me. The 8th joint is only in *celsus* Kleine, dark brown and densely pilose and thus belongs to the apical portion. The species is easily distinguished from *celsus* by the shape of the elytra, and in its habit has altogether little similarity with that species which occurs only on the Malay Peninsula.

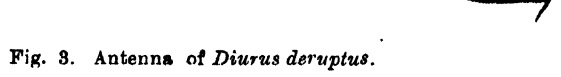


Fig. 3. Antenna of *Diurus deruptus.*

Diurus celsus n. sp.

♀. Head short and thick, slightly longer than broad, posterior edge in the middle triangularly produced, not indented, with raised margins, middle of the base keel-like raised, between posterior margin and keel depressed, towards the eyes flat, between the eyes broadly furrowed, posterior margin of the eyes above and below deeply furrowed, underside flat. Eyes large, prominent.—Metarostrum longer than the head, at its base like the head broadly furrowed, anteriorly the furrow is continued into a broad, flat keel, ground shape angular, lower side cylindrical, mesorostrum humpy, deeply furrowed, prorostrum cylindrical.—Antennæ short and thick, 1st joint short, club-like, not nodose, 2nd very short, transverse, 3rd at least three times as long as the 2nd, the longest joint of all, 4th to 7th considerably shorter, decreasing in length distally, the 3rd still somewhat conical, the following cylindrical and separated, with large scales, the 8th small, square, the 9th and 10th twice as long as broad, the 11th shorter than the 9th and 10th together, bluntly pointed, the 9th to the 11th densely pilose, shining, the various joints distinctly separated.—Prothorax with an indistinct longitudinal furrow, behind the edge of the neck strongly constricted.—The 2nd and 4th ribs of the elytra are narrow at the base and raised, the 3rd depressed, towards the middle the ribs lie in a line. The 3rd rib disappears altogether upon the apex, whilst the 2nd and 4th form at the beginning of the apex peg-like projections so that the apex becomes very steep. All other ribs normal. Appendages short, spine-like, at the base widely separated.—Legs normal, tarsi thick, metatarsus shorter than the 2nd and 3rd joints together, 2nd short, conical, 3rd very broad, deeply split, 1st joint at the sole bristly, 2nd and 3rd short, thick, brush-like pilose.

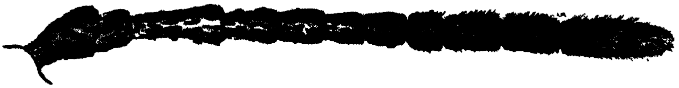
Total length 35 mm.; width (prothorax) about 4.5 mm.

Hab. Gunong Tahan (Pahang), 2500′-3500′; Penang; Gunong Angsi, Negri Sembilan, 2000′-2790′ (R. Hanitsch). Types in the Brit. Museum (ex Raffles Museum).

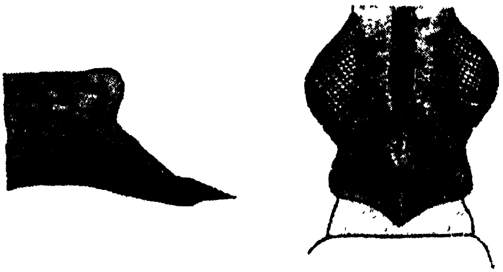
This species cannot be compared with any other known one. Whilst the head is at its posterior border generally indented or straight, it is here produced posteriorly. The structure of the antennæ is in so far remarkable, as already the 8th joint shows the same form and pilosity as the terminal joints. Finally I know of no species which at the apex of the elytra shows a thickening of the ribs. I believe therefore that there is no objection to basing a new species upon a female specimen.

Later on I found a damaged ♂, in which the antennæ were missing altogether, and the appendages which ought to be very long, partially so. Length, without appendages, 46 mm.

Hab. Penang.



Antenna



Apex of the elytra.

Head seen from above.

Fig. 4. ***Diurus celsus.***

Diurus completus n. sp.

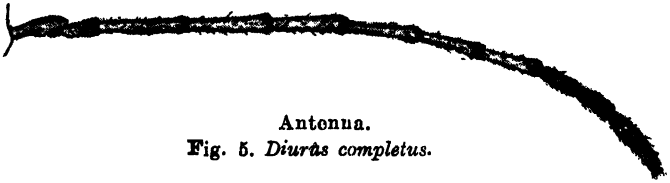
♂ Head at its posterior margin slightly indented, eyes their double diameter distant from the posterior margin, groove below the eyes shallow, upperside indistinctly furrowed.—Rostrum without special character.—Antennæ short, not reaching to the middle of the prothorax. 1st joint thick, short, not nodose; 2nd conical, very short; 3rd to 8th cylindrical, distally slightly nodose, increasing in length towards the tip, terminal joints standing very closely, the 9th and 10th together barely longer than the 8th by itself, standing very closely.—Prothorax only at its base indistinctly furrowed.—Elytra rounded cylindrical, appendages half the length of the elytra, standing pretty close at the base.—Legs normal.—Metasternum and abdomen hardly furrowed.

♀ Prorostrum cylindrical, antennæ generally short and thick, appendages of the elytra short.

Total length ♂ ♀ 21-60 mm. Width (prothorax) 2-4.2 mm.

Hab. Malay Peninsula. 1 ♂, 3 ♀ ♀ in British Museum. Kuching, Sarawak, 1 ♂, Raffles Museum.

This species is also allied to *furcellatus*, but can at once be distinguished by the structure of the antennæ and by the long appendages of the elytra. It is the largest species known to me.



Antenna.
Fig. 5. *Diurus completus.*

PSEUDOCEOCEPHALINI.

Holotrachelus gen. nov.

♀ Of the shape of a short and thick *Schizotrachelus*. Head slender, posterior edge with a shallow indentation, laterally above the eyes, at the posterior edge deeply indented, the indentation continued as a deep furrow to the middle of the eye, upper side flat, not furrowed, the sides at the posterior edge ending in two blunt, large teeth, underside flattened, close to the middle at the base with large, pilose impressions. Eyes large, only a little prominent, distant from the posterior edge by more than their diameter.—Metarostrum short, conical, as long as the head, gently tapering, wider at the sides, at about their posterior third suddenly interrupted, then wedge-shaped continued towards the mesorostrum, central furrow starting from the eyes, narrow, continuous, mesorostrum heart-shaped, slightly humpy, furrowed like the metarostrum, prorostrum thread-like, cylindrical.—Antennæ short, reaching scarcely beyond the edge of the prothorax, slightly club-shaped, 2nd and 4th to 10th joints of the antennæ transverse, 3rd conical, roughly square, 9th and 10th distinctly larger, 11th conical, all joints very loose.—Prothorax slender, ovoid-elliptical, not constricted at the edge of the neck, middle furrow deep, continuous.—Elytra slender, becoming narrower posteriorly, together rounded off at the apex, all ribs present, though only shallow, 2nd very narrow, all others equally wide and much wider than the 2nd, furrows with dots and lines, sutural furrow only indistinctly punctured.—Legs slender, femora club-shaped, stalked, without spines, tibiæ slender, narrow, straight. 1st tarsal joint longer than the 2nd, conical, the 3rd as long as the 1st, broad terminal joint very slender. 1st and 2nd abdominal segments with shallow furrows, apical segment at its base with two pilose, triangular plates which are separated by a narrow, smooth piece which is wider in front and occupies the whole of the posterior margin.

Type! *H. comparabilis* n. sp.

Holotrachelus comparabilis n. sp.

♀ Pitch brown, elytra with yellowish-red maculæ, moderately shining. Upper side of the head indistinctly and sparsely punctured, with short pile within the punctures. Rostrum generally with delicate and scattered punctures, underside of the head with scattered longer pile.—Basal portion of the prothorax laterally and above the coxæ with coarse, shallow punctures, pilose within the punctures, otherwise scarcely sculptured. Femora along their lower edge and inner side of the tibiæ with separate comb-like pile.—Metasternum and abdomen on segments 1 to 4 with coarse, scattered punctures.

♂ differs from the ♀ by the following characters: prorostrum shorter than the metarostrum, anteriorly wedge-like enlarged, indented at its anterior edge, outer edges in their basal portion raised, anteriorly disappearing, very coarsely punctured. Distance of the eye from the insertion of the antennæ twice as large as that of the eye from the posterior edge of the head.

Total length: ♂ ♀ 18 mm; width (prothorax) 2.8 mm.

Hab. Malay Peninsula, Gunong Tahan, Pahang, 2500′-3500′ (May-July 1905, H. C. Robinson), Gunong Angsi, Negri Sembilan, 2000′-2700′ (R. Hanitsch, April 1918). Borneo, Mt. Matang, Sarawak (G. E. Bryant), ♀. Types ♂ and ♀ in the British Museum (♀ ex Raffles Museum).

The new genus can be compared with *Schizotrachelus.* It differs by the teeth along the posterior margin of the eyes, by the very short metarostrum, the long, slender legs, especially by the very thin tibiæ and the pilose apical abdominal segment. Very conspicuous is also the lateral, suddenly interrupted by enlargements on the metarostrum. None of these characters are to be found in *Schizotrachelus.* Its position is in nearest proximity to that genus.

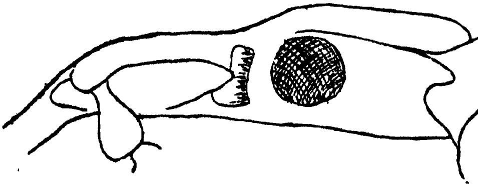
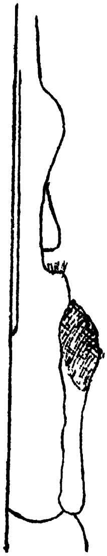


Fig. 6. *Hoiotrachelus incomparabilis.*



Opisthenoplus commodus n. sp.

♀ Pitch brown, shining.—Head sparsely, but distinctly punctured, between the eyes with a long groove-like impression, sides without teeth, underside below the eyes with a row of coarse punctures, with one hair in each puncture. Eyes their half diameter distant from the posterior margin.—Metarostrum short, cylindrical, without median furrow, before the mesorostrum with short, deep lateral furrows, mesorostrum flat, rhomboidal, its basal part with narrow and delicate furrows, its apical portion with a flat, narrow median keel, which for a short distance is continued upon the thread-like prorostrum.—Antennæ short and thick, club-like, 1st joint very thick, large; 2nd without stalk, short, transverse, 3rd to 8th transverse, with sharp edges, larger, but less broad than the preceding ones, but still broader than long, apical joint conical, as long as the 9th and 10th together, pile delicate, from the 9th with thick under-pile.—Middle furrow of the prothorax reaching close to the neck, very deep, sculpture consisting of very scattered, very delicate needle point-like punctures. Elytra mirror-like smooth, 2nd rib strongly developed, the succeeding ones only indicated as scattered dots some of which become very coarse at the apex, apex somewhat prolonged.—Anterior coxæ very close together, median coxæ somewhat further apart, coxal rings sharp and narrow. Femora stout, club-like, stalk narrow and in proportion to the club short, the lower edge up to the club shaggy, densely pilose, tibiæ slender, outer side straight, inner side slightly curved, densely pilose along the whole inner edge. Tarsi short, 1st and 2nd joints transverse, 3rd square, the largest of all, ungual joint larger than the tarsi together, cylindrical, thick, laterally not compressed.—Metasternum, 1st and 2nd abdominal segments not furrowed, arched, transverse suture at the sides deep, apical segment with shallow depression, keeled in the middle, sculpture on the whole weak.

♂ differing from the ♀ by the following characters: prorostrum towards the anterior edge moderately enlarged, flat, in its anterior half with an indication of a slight furrow, needle-like punctured. Hinder edge of the elytra with flat appendages, pincer-like, which do not touch each other.

Total length 16.5 mm; width, prothorax, 2.6 mm.

Hab. Java. Type in the British Museum (♀).—Maxwell's Hill, Perak. Type (ex Raffles Mus.) (♂) in British Museum.

Resembles only *cognatus* Kln., which also occurs in Java. But the ungual joints of that species are not round, but laterally triangularly compressed, and the prothorax is on either side of the middle deep, rugose punctured.

LIST OF THE BRENTHIDÆ SO FAR KNOWN FROM PENANG, PERAK AND SIAM.

Calodromini.

Calodromus mellyi Guer.
Cyphagogus buccatus Kln.
„ *concavus* Kln.
„ *confidens* Kln.
„ *densepunctatus* Kln.
„ *eichhorni* Kirsch.
„ *gladiator* Kln.
„ *longulus* Senna
„ *planifrons* Kirsch
„ *silvanus* Senna
„ *simulator* Senna
„ *tabacicola* Senna
„ *westwoodi* Parry
Opisthenoxys ochraceus Kln.
Mesoderes aberrans Kln.
„ *maculatus* Senna
„ *sexnotatus* Senna
Paraclidorrhinus modiglianii Senna
Eterozemus pubescens Senna
Pseudocyphagogus squamifer Debr.
Autometrus punctulatus Kln.

Stereodermini.

Cerobates adustus Senna
„ *aemulus* Kln.
„ *fossulatus* Motsch.
„ *sexsulcatus* Motsch.
„ *sumatranus* Senna
„ *tristriatus* F.

Trachelizini.

Anocamara catehata Kln.
Metatrachelizus abjectus Kln.
Trachelizus bisulcatus F.
„ *laevigatus* Senna
Miolispa discors Senna
„ *impunctata* Kln.
„ *lineata* Senna
„ *jordanis* Senna
„ *mariae* Senna
„ *nigricollis* Kln.
„ *pygmaea* Senna
„ *siporana* Senna
„ *suturalis* Pascoe
Hypomiolispa clavata Kln.
„ *compressa* Kln.
„ *fausti* Senna
„ *nupta* Senna
„ *trachelizoides* Senna
Higonius crux Olliff
„ *hirsutus* Senna
Araiorrhinus conquisitus Kln.
„ *exportatus* Senna
„ *longirostris* Senna
Microtrachelizus accomodatus Kln.
„ *pubescens* Senna
Hoplopisthius trichimerus Senna
Carcinopisthius fruhstorferi Senna
„ *interrupticosta* Senna

Amorphocephalini.

Paussobrenthus bakeri Gestro
Leptamorphocephalus sumatranus Senna
„ *variolosus* Power

Arrhenodini.

Agriorrhynchus undulatus Power
„ *borrei* Power
Eupeithes bardus Kln.
„ *dux* Senna
Prophthalmus heikertingeri Kln.
„ *longirostris* Gyll.
„ *tridentatus* F.
„ *bourgeoisi* Power
Baryrrhynchus dehiscens Gyll.
„ *rugosicollis* Power
Stratiorrhina concors Kln.
„ *pascoei* Kirsch
„ *major* Calabr.
„ *xiphias* Westw.
Caenorychodes serrirostris F.

Hemiorychodes continens Kln.
Pseudorychodes damnosus Kln.
„ *cruentatus* Senna
„ *lineolatus* Kirsch
„ *ritsemae* Senna
Suborychodes intermedius Kln.

Belopherini.

Euphenges iridescens Calabr.
Heteroblysmia cava Kln.
Epicoenoneus femoralis Senna
Apocemus conciliator Kirsch
Ectocemus cinnamomi Herbst
Pseudobelopherus orientalis Calabr.
„ *deductus* Kln.
Anepsiotes kleinei Calabr.
Heterorhynchus ornatus Calabr.

Ithystenini.

Diurus celsus Kln.
„ *completus* Kln.
„ *forcipatus* Westw.
„ *furcillatus* Gyll.
„ *filicauda* Senna
Codiocera tristis Senna

Pseudoceocephalini.

Opisthenoplus carus Walk.
„ *commodus* Kln.
Hormocerus reticulatus F.
Schizotrachelus cameratus Lacord.
„ *madens* Lacord.
„ *marginatus* Senna
Holotrachelus comparabilis Kln.
Metatrachelus comparativus Kln.

Shaer Raksi.

By H. Overbeck.

Abdullah bin Abdulkadir narrates that from the fifth month of his life, his health was poor, and that as soon as he had recovered from one sickness, he fell ill again. "People said: 'If such is the fate of the boy that he never ceases to be ill, perhaps his parents are not fit (*tiada sa-rasi*) to bring him up.' "[1]

Now *rasi*, a Sanskrit word, means a constellation of stars or the signs of the zodiac, and *tiada sa-rasi* means literally that the "stars" of husband and wife do not agree. I cannot say if in former times horoscopy was practised by Malays to find out whether a marriage would be lucky or not, though the frequent mention of the astrologer (*ahli'n-nujum*) in Malay literature, and passages like "the princess was born under the sign of the planet Jupiter" suggest the custom. In later times, however, the Arabic system of the numerical value of the letters of the alphabet has been used to discover whether husband and wife will agree, though I cannot say if the system has been imported intact from Arabia and is also in use in that country.

This system of determining the *raksi* or affinity of couples is expounded in the *Shaër Raksi*, a work mentioned in old catalogues of Malay publishers in Singapore, and of which a new edition was published in 1915, a sign that it is still in demand amongst Malays. The lithographed work, published by Haji Muhamad Amin, 7, Bagdad Street, Singapore, was written by Raja Haji Ahmad, a native of Riau. The *shaïr* is apparently based on one or more other books treating of the system. One edition mentions a Shaikh Jalalu'd-din as the author.

After the usual invocation of God and His Prophet the author proceeds:

This is the *shaër raksi*, which should be consulted as to the fate of husbands and wives, so that they may enjoy true happiness, or, again, if one wishes to find a friend, male or female. If you want to find out about a person, make out carefully (the numerical value of) the letters of his name, and add up the (numerical value of the) letters of each name separately. On no account must the numbers be mixed up; the sums of the man and the woman must be kept separate, and divided by nine. The remainders of each of the two sums are then compared, and you must be careful not to make mistakes, as by this system you will be shown what tradition (*pĕtua*) says. If for example a man named Hassan (حسن)

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[1] "Hikayat Abdullah bin Abdulkadir, Munshi" (Malay Literature Series, romanised., Singapore 1907) Vol. I, p. ii.

wants to marry a woman called Meriam (مريم), I shall show you the easy way to discover their affinity. The sum of the (numerical value of the) letters of Hassan is 118; divided by 9 the remainder is 1. If you add up the (numerical value of the) letters of Meriam, you will find the sum to be 290,[1] which divided by nine will show a remainder of 2. This now (1 and 2) is their *raksi,* and a very good *raksi* it is, which cannot be surpassed, as it is like that of Adam and Eve.[1] Thus it is done, and that you may easily see (the numerical value of the letters) I have written them below.

ابجد 4,3,2,1	ه وز 7,6 5	حطي 10.9,8	كلمن 50,40,30.20	سعفص 90,80,70 60	قرشت 400,300,200,100	ثخذ 700,600.500	ضظغ 1000,900,800
ا 1	ب 2	ج 3	د 4	ه 5	و 6	ز 7	ح 8
ط 9	ي 10	ك 20	ل 30	م 40	ن 50	س 60	ع 70
ف 80	ص 90	ق 100	ر 200	ش 300	ت 400	ث 500	خ 600
		ذ 700	ض 800	ظ 900	غ 1000		

I.

Dĕngarkan, tuan muda bĕrbangsa!	Now listen, youths of noble birth!
Jika ĕsa bĕrsama ĕsa,	If one and one come together,
Tĕrsangat baik, muda bĕrbangsa,	It is exceedingly well, oh noble youths,
Siang dan malam bĕroleh sĕntosa,	By day and by night you will have peace.

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[1] The author makes it 218, which obviously is a mistake (compare the table below.) As divided by nine in both cases the remainder is 2, the sum agreeing with the table of the numerical values of the letters is given above.

[1] Spelled ادم and حوي which is not correct if the rate is to be 1 and 2.

Rězěki-nya murah bukan kěpalang,	Daily bread will be uncommonly cheap;
Siang dan malam tiada-lah sěnang,	Day and by night you will have no idle time,
Sahabat handai saudara běrulang,	(As) friends and relations will be always visiting you.
Di-lěpaskan Allah sifat yang malang,	God will preserve you from all misfortune.

Běrkaseh-kasehan tiada antara,	You will love each other without cessation,
Tělindong daripada bahaya dan mara,	You will be protected from danger and peril;
Kaseh kapada-nya běběrapa saudara,	There will be love between you and your many relations,
Di-lěpaskan Tuhan děripada chěděra.	And the Lord will protect you from hurt.

II.

Jika ěsa sama-nya dua,	If one and two come together,
Těrlalu baik raksi-nya kědua,	It is an exceedingly good *raksi* for both,
Kapada yang lain tiada kěchewa,	Which cannot be surpassed by any other,
Umpama Adam děngan-nya Hawa.	As it is like that of Adam and Eve.

Sangat mupakat sa-barang kira,	They will consult one another in all matters,
Turut-měnurut apa bichara;	And will follow one another's advice;
Pěkěrjaan baik sukar běrsěgěra,	Work easy and difficult will proceed speedily,
Tiap-tiap pěkěrjaan tiada-lah běrsikara.	And in every occupation they will not counteract one another.

Ini-lah jodoh běrsama sětia,	They will be a couple equally faithful,
Kaseh dan sayang kapada manusia;	Who will have pity and compassion on their fellow-creatures;
Orang mělihat běrsuka-ria;	People looking at them will rejoice greatly;
Tiada měmpěrbuat pěkěrjaan aniaya.	They will not work oppression.

III.

Jika ěsa běrsama tiga,	If one and three come togther,
Děmikian itu běrbaik juga,	They will live together fairly well,

Tĕtapi mĕnaroh shak dan sangka,	But there will be suspicion and doubt,
Bĕrchĕrai juga, tiada akan leka.	And they will leave each other ere long.

IV.

Jika ĕsa bĕrsama ĕmpat,	If one and four come together,
Tiada juga bĕrapa mĕpakat,	They will not agree well;
Pĕkĕrjaan kĕdua di-dalam mashakat,	Work for both will be troublesome,
Bĕrchĕrai juga, tiada akan bĕrkat.	They will separate, and their marriage will not be blessed.

V.

Jika ĕsa bĕrsama lima,	If one and five come together,
Tiada baik, lawan bĕrsama;	It is not good; they will oppose one another;
Karna ta' sĕdar binasa nama,	They will not take care not to ruin their reputation,
Bĕrchĕrai juga, tiada akan lama.	And it will not be long ere they separate.

VI.

Jika ĕsa bĕrsama ĕnam,	If one and six come together,
Banyak juga boleh bĕrtanam,	They will do well in agriculture,
Tĕrsĕnangan dapat tiada tĕrbĕnam,	They will be comfortable and will not go under,
Tiada harta binasa jahanam.	Nor will their possessions be lost.

VII.

Jika satu bĕrsama tujoh,	If one and seven come together,
Tiada baik mĕnjadi jodoh,	They will not be a good match,
Hati di-dalam pandangan jauh,	Their hearts will remain far apart,
Jadi-lah sapĕrti mĕnaroh musoh.	And it will be like having an enemy in the house.

VIII.

Jika satu bĕrsama dĕlapan,	If one and eight come together,
Bĕrbaik juga pada kĕhidupan,	It will be good for the seeking of a livelihood.
Tĕtapi ada juga kĕsimpulan,	But there will be knotty troubles,
Sa-tĕngah pula mĕngata kĕdukaän.	And some people say there will be sorrow.

IX.

Jika satu bĕrsama sĕmbilan,	If one and nine come together,
Bĕrbaik juga bĕrkĕkalan,	They will live well together for ever.
Tĕtapi ada jalan kĕtinggalan,	But their roads may go apart,
Karna rĕzĕki-nya tiada bĕrbĕtulan.	As their daily bread is not sure.

X.

Fasal dua bĕrsama dua,	If two and two come together,
Bĕrbaik juga raksi-nya kĕdua,	There is some good in the *raksi* for both,
Mĕnyalah sadikit kapada pĕtua	But according to tradition there will be something amiss,
Akhir-nya itu bĕrchĕrai jua.	And at last they will separate.

XI.

Jika dua bĕrsama tiga,	If two and three come together,
Tĕrlalu jahat kĕdua mĕreka,	It will be very bad for both;
Hati didalam mĕnjahatkan sangka,	They will think badly of each other,
Dĕmikian itu bĕrchĕrai juga.	And thus they will separate.

XII

Jika dua bĕrsama ĕmpat,	If two and four come together,
Sunggoh pun kĕkal, kurang mĕpakat,	Though the marriage will be lasting, there will be little harmony,
Karna kĕdua-nja masing-masing mĕndapat,	As each of them will have to earn it,
Jadi-lah kĕhidupan kurang-lah bĕrkat.	Their livelihood will be less blessed.

XIII.

Jika dua bĕrsama lima,	If two and five come together,
Boleh juga diam bĕrsama,	The two may live together,
Tĕtapi sangat tĕkĕbor 'kan nama,	But they will be very proud,
Jadi-lah papa tiada akan lama.	And will be poor ere long.

XIV.

Jika dua bĕrsama ĕnam,	If two and six come together,
Tiada-lah baik marah mĕnanam,	It is not good, as they will sow anger,
Mĕnjadi papa, harta jahanam,	They will be poor and their possessions be lost;
Bĕrsamaän api makan kĕtunam.	They will live together like fire and a slow-match.

XV.

Jika dua bersama tujoh,	If two and seven come together,
Baik raksi-nya mĕnjadi jodoh,	The *raksi* is good for a match;
Pĕrangai-nya baik, sĕtia-nya tĕgoh,	They will be of good character and of constant faithfulness,
Pĕkĕrjaan sa-suatu dĕngan bĕrsunggoh,	And in every thing will work heartily together.

XVI.

Jika dua dĕngan dĕlapan,	If two and eight come together,
Tĕrlalu-lah jahat pada pĕrbuatan,	It will be a very bad match;
Pĕrĕmpuan itu banyak jawapan,	The woman will always have the last word,
Tambahan pula banyak pĕmulutan.	And, besides, will be very talkative.

Jangan-lah kamu hampir sakali.	On no account do you come near her,
Ini-lah raksi sangat pěmali,	As this is the *raksi* which absolutely forbids marriage,
Pěkěrjaän yang banyak tiada pěduli.	She will not care for much work,
Jauhkan sapěrti ular yang gěli.	And you should keep away from her as from a loathsome snake.

Jangan-lah ěngkau pandang dan tilek,	Do not gaze or look upon her,
Apa-tah lagi di-jadikan milek,	Much less make her your legal property;
Kěrja-nya sa-hingga jalan běrsulek,	She will find work in the byeways.
Tiada tětap di-dalam bilek.	And will not abide in her home.

Jika těrpandang ka-pada mata,	If you cast your eyes on her,
Di-dalam hati jangan běrchinta,	In your heart do not long for her,
Sunggoh pun ia elok-nya nyata,	Though she be beautiful to look at,
Akhir-nya měnyusahkan ka-pada kita.	In the end she will bring you sorrow.

XVII.

Jika dua děngan sěmbilan,	If two and nine come together,
Baik raksi-nya boleh kěbětulan,	The *raksi* is good and well matched;
Běrsuka-chita sahabat dan taulan,	Your friends and acquaintances will be glad of the marriage,
Di-bělakang-nya tiada jadi kěkěsalan.	Which afterwards will not lead to regret.

Elok-nya di-pěrbuat istěri kapada-mu,	It will be very well for you to make her your wife,
Muka-nya di-tatap tiada-lah jěmu,	For you will never tire of watching her face.
Tambahan suka měnjadi ‘elmu,	Pleasure will teach you wisdom,
Di-dalam hati-nya suka běrjamu.	In her heart she will be glad to entertain you.

XVIII.

Fasal-nya tiga běrsama tiga,	As regards three and three,
Kurang-lah baik kědua měreka,	It is not good for either party,
Pěrbuatan-nya tiada děngan běrjangka,	Their work will never be calculated,
Akhir-nya itu běrchěrai juga.	And in the end they will separate.

XIX.

Jika tiga děngan-nya ěmpat,	If three and four come together,
Itu pun tiada běrapa měpakat	The two will not harmonize well;

Pĕkĕrjaän itu banyak mashakat,	Their work will be troublesome,
Bĕrchĕrai juga tiada akan lĕkat.	They will separate and not stick together.

XX.

Jika tiga dĕngan-nya lima,	If three and five come together,
Tiada baik jodoh bĕrsama,	It is not good that the two should be united;
Ĕmpat bulan atau kĕlima,	Within four months, or in the fifth,
Talak di-bĕri sĕgĕra di-tĕrima.	The divorce offered will be quickly accepted.

Ini-lah jodoh tĕrsangat kĕji,	She will be a discreditable wife,
Tambahan pula pĕmungkir janji,	Who moreover will break faith,
Tiada pula hĕndak mĕngaji,	And will refuse to learn:
Banyak-lah manusia tiada mĕmuji.	Many people do not praise her.

XXI.

Jika tiga dĕngan-nya ĕnam,	If three and six come together,
Bĕrbaik juga bĕrsawah bĕrtanam,	It is well for rice growing and planting,
Tĕtapi pikiran di-hati bĕrbĕnam,	But the heart will be overwhelmed with its thoughts,
Mĕmbanyakkan dusta di-bĕri jahanam.	And a multitude of lies will bring destruction.

XXII.

Jika tiga dĕngan-nya tujoh,	If three and seven come together,
Baik raksi-nya mĕnjadi jodoh,	The *raksi* is auspicious for a good match;
Tiada bĕrapa mĕndatangkan gadoh,	You will not have many altercations,
Sĕrta tiada bĕrapa mĕrusoh.	Nor many disturbances of your peace.

XXIII.

Jika tiga dĕngan dĕlapan,	If three and eight come together,
Bĕrbaik juga pada kĕhidupan,	It is good for the earning of the livelihood;
Rĕzĕki-nya dapat bĕlakang hadapan,	You will find your daily bread everywhere around you,
Shak pula tiada mĕnĕtapkan.	But there will be suspicion, and the marriage will not be permanent.

XXIV.

Jika tiga dĕngan sĕmbilan,	If three and nine come together,
Dĕmikian itu tiada kĕbĕtulan,	It is not an appropriate omen,
Salah sa-orang bĕrlainan jalan,	The one or the other will seek his own way,
Di-akhir-nya jadi pula kĕkĕsalan.	And in the end it will lead to regret.

Jangan-lah dahulu tuan bĕrsama,	Therefore do not marry in haste,
Chari-lah jodoh yang baik nama,	But look out for a woman with a good name;
Tiada-lah jadi dĕngan pĕrchuma,	So that you marry not in vain,
Mudah-mudahan bĕrkaseh lama.	But with luck love for long.

XXV.

Fasal ĕmpat bĕrsama ĕmpat,	As regards four and four,
Tiada-lah bĕrapa baik mĕpakat,	The two will not agree well;
Kĕrja-nya sa-hingga jalan mĕngumpat,	They will only injure one another's good name,
Bĕrchĕrai juga tiada akan lĕkat.	And will separate and not stick together.

XXVI.

Jika ĕmpat bĕrsama lima,	If four and five come together,
Kaseh itu tiada bĕrapa lama,	Their love will not last long,
Tiada mĕmikirkan binasa nama,	They will not heed the ruin of their good names,
Tiada akan kĕkal kĕdua-nya sama.	And their union will not be lasting.

XXVII.

Jika ĕmpat bĕrsama ĕnam,	If four and six come together,
Tiada baik bĕrniaga bĕrtanam,	They will not be lucky in trade or agriculture;
Hati-nya lĕmas marah mĕnanam,	Their thoughts will faint with the planting of anger,
Akhir-nya itu jadi jahanam.	And thus in the end they will come to destruction.

XXVIII.

Jika ĕmpat bĕrsama tujoh,	If four and seven come together,
Siang dan malam bĕrhati gadoh,	Hearts will be divided in disputation day and night;
Umpama rumah yang kurang tĕgoh,	Like a house that is not firmly built,
Tujoh hari sa-kali runtoh.	That falls down once in seven days.

XXIX.

Jika ĕmpat dĕngan dĕlapan,	If four and eight come together,
Antara kĕdua tiada kĕtĕtapan,	There will be no permanent union between the two;
Sa-tĕngah pula mĕngata kĕbajikan,	Some people, however, say that it will be advantageous,
Kaul yang satu tiada mĕnĕtapkan.	Though there is one school that denies this.

XXX.

Jika ĕmpat dĕngan sĕmbilan,	If four and nine come together,
Itu pun tiada juga kĕbĕtulan,	That, too, is not appropriate,

Karna ikhtiar bĕrsamaän jalan,	As the only means to get on well together
Pĕkĕrjaan yang banyak banyak kĕtinggalan.	Is to abandon much of their work.

XXXI.

Fasal lima bĕrsama lima,	As regards five and five,
Itu pun tiada baik bĕrsama,	They will not get on well together,
Pĕrangai-nya tiada mĕmbaikkan nama,	Their conduct will not improve their reputation,
Bĕrchĕrai juga tiada akan lama.	And they will separate ere long.

XXXII.

Jika lima dĕngan-nya ĕnam,	If five and six come together,
Umpama ayer di-dalam kolam,	It will be (smooth) like water in a well;
Bĕrkaseh-kasehan siang dan malam,	They will live in mutual love day and night,
Umpama chinchin pĕrmata nilam.	And will be like a ring and its sapphire.

XXXIII.

Jika lima bĕrsama tujoh,	If five and seven come together,
Bĕrbaik juga ia bĕrjodoh,	It is good the parties match,
Tĕtapi ada sadikit rusoh,	But there will be some differences,
Tiada baik bĕrjalan jauh.	And they should not go far from each other.

XXXIV.

Jika lima bĕrsama dĕlapan,	If five and eight come together,
Tiada bĕrapa juga kĕtĕtapan,	The union will not be lasting;
Sunggoh pun baik jalan kĕhidupan,	Though it will be well as regards the earning of a livelihood,
Akhir-nya jadi juga kĕsusahan.	There will be trouble in the end.

XXXV.

Jika lima dĕngan sĕmbilan,	If five and nine come together,
Antara kĕdua sama pĕrtĕngahan,	The two will keep even with each other;
Jika kĕras sama kĕkĕrasan,	Force will meet force,
Maka baik sama kĕbajikan.	And gentleness will meet gentleness.

XXXVI.

Fasal ĕnam bĕrsama ĕnam,	As regards six and six,
Baik kĕdua-nya bĕrtanam-tanam,	Both will be lucky in agriculture,
Ikhtiar aleh tiada bĕrbĕnam,	When they move their seedlings they will not be submerged,
Lĕpas dĕripada binasa jahanam.	And will escape ruin and loss.

XXXVII.

Jika ĕnam bĕrsama tujoh,	If six and seven come together,
Sunggoh pun kĕkal, bĕrhati gadoh,	Though the union will be lasting, there will be quarrels;

Hati di-dalam mĕnaroh rusoh,
Sĕrta dĕngan sĕtia ta' tĕgoh.

The heart within will be angry,
And besides, there will not be secure fidelity.

XXXVIII.

Jika ĕnam dĕngan dĕlapan,
Boleh juga jadi harapan,
Sa-tĕngah pula mĕngata kĕtĕtapan,
Kaul yang lain tiada mĕnĕntukan.

If six and eight come together,
There may be hope:
Some people say the union will be permanent,
But others do not confirm it.

XXXIX.

Jika ĕnam dĕngan sĕmbilan,
Bĕrbaik juga kĕhidupan bĕrjalan,
Tĕtapi ada pula kĕsialan,
Karna hati-nya di-dalam kĕsĕbalan.

If six and nine come together,
They will be able to earn a good livelihood,
But they will meet with ill-luck,
As in their hearts they will feel regret.

XL.

Fasal tujoh bĕrsama tujoh,
Tiada baik, bĕrhati rusoh,
Hati-nya tiada bĕrsuchi basoh,
Jadi-lah banyak mĕnaroh musoh.

As regards seven and seven,
It is not good; they will quarrel in their hearts,
And their hearts will not be clean towards one another;
It will be like keeping many enemies (in the house).

XLI.

Jika tujoh dĕngan dĕlapan,
Tiada-lah baik jalan kĕhidupan,
Bichara-nya salah bĕlakang hadapan,
Tiada lama jadi kĕaipan.

If seven and eight come together,
They will not be lucky in earning their livelihood;
They will make mistakes all round,
And will be put to shame ere long.

XLII.

Jika tujoh dĕngan sĕmbilan,
Bĕrbaik juga di-pĕrbuat taulan,
Tĕtapi ada juga kĕkĕsalan,
Karna malas pĕkĕrjaan bĕrjalan.

If seven and nine come together,
It is well for them to become comrades.
But there will be some regret,
As she will be lazy and a gadder.

XLIII

Fasal dĕlapan dĕngan dĕlapan,
Ini-lah raksi boleh kĕtĕtapan,
Dĕngan yang mudah jalan kĕhidupan,
Bĕroleh rĕzĕki dĕngan kĕlĕngkapan.

As regards eight and eight,
It is a *raksi* which means permanency,
And an easy earning of the livelihood,
Which will provide you with daily bread and all necessities.

XLIV

Fasal dĕlapan dĕngan sĕmbilan,

As regards eight and nine,

Ini-lah raksi sangat handalan,	It is a very reliable *raksi;*
Bĕroleh anak dĕngan kĕbĕtulan	You will be sure to have children,
Tiada-lah hati jadi kĕsĕbalan.	And you will never feel regret.

XLV.

Fasal sĕmbilan dĕngan sĕmbilan,	As regards nine and nine,
Raksi-nya baik dĕngan kĕbĕtulan,	It is a good and appropriate *raksi;*
Hukuman di-turut dĕngan kĕadilan,	Your orders will be followed honestly,
Umpama bintang hampir kabulan.	You will be as star and moon.

XLVI.

Tamat-lah shaër sahaya karangkan,	Here ends the poem I have written,
Di-dalam kitab sahaya salinkan;	Which I have copied into this book;
Siapa mĕniru-nya tiada di-idzinkan,	No one is allowed to reprint it,
Mĕlainkan orang sudah di-bĕnarkan.	Unless he has been given permission.

The *Shaër Raksi* is the first chapter of the book; the second is the *Shara' Hari Bulan,* of which the essential parts are given below.

The work give directions for every day of the month and should be consulted to ascertain if the day in question is lucky for any intended enterprise.

Ini-lah pĕrmualaän sa-hari bulan,	As regards the first day of the month.
Tiap-tiap pĕkĕrjaan sangat handalan,	Whatever you begin will be successful.
Mĕngadap raja bĕrtĕmu taulan,	For appearing before the king, or meeting friends,
Bĕrniaga bĕrlayar sangat kĕbĕtulan.	For trading or voyaging it will be auspicious.

Jika bĕrtanam, baik-lah tumboh;	Planting will ensure abundant growth,
Mĕndapat sakit, bĕrsĕgĕra sĕmboh;	If you fall ill, you will soon recover.
Baik mĕnyĕrang ka-pada musoh,	It is a good day to attack an enemy,
Tiada bĕrapa hati-mu gadoh.	Which will not give you trouble and sorrow.

Jika ada dua hari bulan-nya,	As regards the second day of the month,
Bĕrlayar bĕrniaga baik di-dalam-nya,	It is a good day for trading and sailing;

Bĕrtanam-tanaman atau mĕngapat-nya,	For planting, settlements and agreements,
Bĕrjumpa saudara lambat bĕrtĕmu-nya.	And to meet relations one has not seen for a long time.

Atau pun sakit di-dalam diri,	If you fall ill (on this day)
Lambat sa-dikit pĕnyakit-mu lari,	The illness will be slow in leaving you;
Mĕmanggil orang payah di-chari,	If you send for a man, it will be hard to find him;
Di-panggil orang mĕnyusahkan diri.	If you are sent for, you will have trouble.

Jika pada tiga hari itu,	As regards the third day of the month,
Tiada-lah baik kĕtika itu,	It is not an auspicious time,
Karna nahas nyata-lah tĕntu,	As it is sure to bring ill-luck;
Di-dalam shara' kĕlak bagitu.	Thus it is said in the Shara'.

Jika pada ĕmpat hari bulan,	As regards the fourth day of the month,
Bĕrniaga bĕrtanam tiada kĕsĕsalan,	Trading and planting will not lead to regret;
Mĕngadap raja atau bĕrjalan,	If you appear before the king or go on an errand,
Hati pun tiada jadi kĕsĕbalan.	You heart will not be disappointed.

Jika ka-pada lima hari bulan nyata,	As regards the fifth day of the month,
Bĕrniaga kahwin mĕnchari harta,	In trading, marrying or looking for money,
Tĕrlalu baik pĕkĕrjaan kita;	Our doings will be very successful;
Pĕkerjaan jauh, hati bĕrchinta;	If your business takes you far away, you will feel regret;

Atau pun kita mĕlawan sa-orang,	But if we want to fight an enemy
Tĕrlalu jahat bukan sa-barang,	Great evil quite out of the common will befall;
Jangan di-turutkan hati mĕmberang,	On no account must we give way to angry passion,
Nĕschaya kita di-sorakkan orang.	As people are sure to cry victory over us.

Kĕjadian kanak-kanak kĕtika itu	To beget children on that day,
Tiada baik, bĕrhati buntu,	Is not well, as they will be very stupid.
Pĕrkhabaran baik bĕlum-lah tĕntu,	Good news will not be reliable,

Khabar yang jahat sunggoh bagitu.	Whilst bad news will be true.

Pada ĕnam hari bulan nyata,	As regards the sixth day of the month,
Baik bĕrniaga bĕrbĕkam pun sĕrta;	It is a good day for trading and for cupping,
Jika sakit, lambat suka-chita,	If you fall ill, it will be long ere you enjoy health;
Kĕjadian kanak-kanak baik bĕrita.	To beget children is said to be well.

Jika pada tujoh hari bulan,	As regards the seventh day of the month,
Bĕrhutang bĕrbarih jadi kĕsĕsalan,	To contract debts will lead to repentance;
Tĕtapi bĕruntong, jika bĕrjalan,	But if you go out on errands it will turn out to your profit.
Jika sakit jadi kĕsimpulan.	If you fall ill, there will be complications.

Kĕjadian kanak-kanak kĕtika itu,	If you beget children on that day,
Kuat dusta pĕrangai-nya tĕntu,	They will be deceitful in character;
Mĕlawan orang jadi-lah mutu,	To fight a man will lead to sorrow,
Di-lawan orang susah bagitu.	And if another man attacks you, there will likewise be trouble.

Jika pada lapan hari bulan-nya,	As regards the eighth day of the month,
Sangat-lah baik sa-barang kĕrjanya,	It is a very lucky day for all kinds of work,
Bĕrniaga bĕrkahwin atau bĕrkĕbun-nya;	For marrying, trading and gardening;
Jika bĕrlayar kurang baik-nya.	But less lucky for a voyage.

Jika sakit ka-pada tuboh,	If you fall ill (on that day ?),
Insh'Allah bĕroleh sĕmboh,	You will recover, if it pleases God,
Tiada-lah kamu bĕrhati gadoh:	And your heart need not be disturbed.
Kĕjadian kanak-kanak baik-lah sunggoh.	To beget children is certainly well.

Pada sĕmbilan, ayohai tuan!	On the ninth day, sirs,
Jika bĕrjalan bĕrniat bĕrlawan,	If you go out for a fight,
Ini waktu tiada bĕrbĕtulan,	The time is not auspicious,
Tĕrkadang tĕrkĕna kita tĕrtawan.	And there is a chance that you will be captured.

Pada sa-puloh, ayohai sahabat!	On the tenth day, friends,
Tiap-tiap pĕkĕrjaan tiada-lah lambat,	All work can be performed without delay;
Apa maksud sĕgĕra tĕrdapat,	Whatever you want you will obtain quickly,
Baik ziarat[1] *ka-pada sahabat.*	And it is a good day for visiting (the grave of?) a friend.

Pada sa-bĕlas ayohai siti!	On the eleventh day, ladies,
Bĕrkĕbun bĕrkahwin bĕrsuka hati,	Gardening and marrying will lead to happiness;
Pĕnyakit yang bĕrat bĕringan bĕrganti,	A dangerous disease will pass into an easier stage;
Pĕlayaran jauh mĕnyusahkan hati.	A voyage to a distant port will lead to trouble.

Kĕjadian kanak-kanak, ayohai saudara!	If you beget children, my brothers,
Tiada suatu bahaya dan mara,	They will not meet with any misfortune or danger,
Di-ampunkan Tuhan chachat dan chĕdĕra,	The Lord will protect them from defect and blemish
Orang pun banyak mĕnolong pĕlihara.	And many people will help you to take care of them.

Rĕzĕki-nya murah bukan kĕpalang,	They will have extraordinary ease in finding a livelihood,
Bĕbĕrapa saudara tĕman bĕrulang,	They will have brothers and friends constantly to visit them,
Tĕrlĕpas daripada nama yang malang,	They will escape adverse fortune,
Umpama pĕrahu lĕpas di-galang.	Like a ship launched safe from the slipway.

Pada dua-bĕlas, ayohai bonda!	On the twelfth day, mothers,
Waktu ini jangan di-landa,	At this time admit no intruders,
Pĕkĕrjaan di-buat jangan mĕmada,	Be not satisfied with the amount of work done;
Jadi kĕsusahan di-hati mĕnggoda.	Or trouble will plague your heart.

Mĕlainkan raja-raja juga yang larang,	Only princes are excepted from this rule (?)
Boleh ia mĕmpĕrbuat sa-barang,	And may do whatever they like,
Tiada siapa boleh mĕlarang,	As there is none to forbid them;
Dĕmikian-lah shara' mĕnyatakan tĕrang.	Thus it is made clear in the shara'.

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[1] Ziarat means a pilgrimage to a tomb or shrine, but could mean here a visit to a sick person, in which meaning the word is used below.

Kĕjadian kanak-kanak pula di-nyatakan,	Of the begetting of children it is clearly stated
Jika pĕnyakit Tuhan sĕmbohkan,	That the Lord will cure them if they fall ill;
Mĕnuntut ‘elmu baik di-amalkan,	In the pursuit of knowledge they will do well,
Bĕrkahwin mĕmpĕrbuat rumah di-dirikan.	And if marrying, will build their own house.

Pada tiga-bĕlas hari ayohai kakak,	As regards the thirteenth day, my elder sister,
Tiada-lah baik, pĕkĕrjaan sangkak,	It is not a good day, as all work will meet with hindrance;
Tiap-tiap kĕmaluan jadi tĕrbukak,	All sorts of disgraceful things will be brought to light,
Pĕnyakit tĕrsĕmboh walau pun bĕngkak.	Illness will be cured even if it is inflammation or swelling.

Pada ĕmpat-bĕlas bulan pĕrnama,	On the fourteenth day, the day of the full moon,
Tiap-tiap pĕkĕrjaan tiada pĕrchuma.	No work whatever will be done in vain;
Mĕndapat rĕzĕki di-makan lama,	If you find a livelihood, it will provide you with food for a long time,
Tiada di-chachat manusia nama.	And people will not injure your reputation.

Jika hĕndak bĕlayar sĕgĕra-nya,	If you want to sail in a hurry,
Ada-lah juga sadikit azur-nya,	There will be a little delay, which will not be your own fault,
Tĕrlambat pula dĕngan sĕbab-nya,	And therefore you will be a little late,
Tĕtapi tiada bĕrapa susah-nya.	But it will not lead to much trouble.

Jika sakit kapada tuboh,	If you fall ill on that day,
Tiada bĕrapa hati-mu gadoh,	Do not let your mind be disturbed,
Insh'allah sĕgĕra sĕmboh,	As you will quickly recover, if it pleases God;
Tĕrkurang baik pĕlayaran jauh.	But it is a bad day to start on a voyage to a distant place.

Pada lima-bĕlas hari bulan nyata,	As regards the fifteenth day, it is made clear
Sĕlamat sĕmpurna pĕkĕrjaan kita,	That all your work will have good speed and success,
Di-hilangkan Tuhan hati bĕrchinta,	The Lord will take away the sorrow from your mind;

Dĕmikian itu shara'-nya bĕrkata.	Thus says the ***shara'***.
Kĕjadian kanak-kanak kĕtika itu,	If you beget children on that day
Bĕroleh bahagia nyata-lah tĕntu,	They are sure to be happy.
Dĕngan kurnia Tuhan yang satu.	By the favour of the only God.
Pĕnyakit tĕrlambat sĕmboh bagitu.	A lingering sickness will end in recovery.

Pada ĕnam-bĕlas hari bulan-nya,	As regards the sixteenth day of the month,
Tiada baik sa-barang kĕrja-nya,	No work whatever will succeed;
Nanti dahulu di-bĕlakang waktu-nya,	Better wait until a later day,
Ajma hukama hari nahas-nya.	As all learned men agree that the day is ill-omened.

Jika pada tujoh-bĕlas hari,	As regards the seventeenth day,
Baik mĕnghadap raja-raja mĕntĕri,	It is a good one to appear before prince or minister,
Atau pun kamu hĕndak bĕristĕri,	And if you take a wife,
Insh'allah sĕmpurna-lah diri-	You will enjoy happiness, if it pleases God.

Tĕtapi bĕlayar kurang baik-nya,	But for starting on a voyage it is a bad day
Jika sakit, ada mara-nya,	And if you fall ill, there will be danger;
Sa-tĕngah kaul pula mĕngata-nya,	Some people, however, say
Bĕroleh banyak rĕzĕki-nya untong-nya.	That it is a day which will bring you much bread and profit.

Kĕjadian kanak-kanak kĕtika itu,	As regards the begetting of children,
Sa-tĕngah kaul mĕngata ta' tĕntu,	Some people say that the matter is doubtful;
Ada mĕngata baik bagitu,	Others say that it is a good day,
Mĕngata khianat kaul yang satu.	And others that it is a treacherous day.

Jika pada lapan-bĕlas hari,	As regards the eighteenth day.
Ada-lah kurang pĕkĕrjaan mĕnchari,	It is not a good day for work to earn one's livelihood;
Sabar-lah dahulu kĕmudian hari,	Better wait until another day,
Tiada-lah baik mĕnyusahkan diri.	As it will be unlucky and will bring you trouble.

Pada sĕmbilan-bĕlas hari bulan-nya,	As regards the nineteenth day,
Tiada-lah baik pĕkĕrjaan di-dalam-nya,	All work will lead to sadness,

Pĕkĕrjaan baik bĕrganti jahat-nya,	And good work will turn into bad
Kĕjadian kanak-kanak baik pĕrangai-nya.	Children begotten on that day will be of good character.

Pada dua-puloh hari bulan sudah,	As regards the twentieth day of the month,
Sa-barang pĕkĕrjaan bĕrhati gondah,	All work will lead to sadness;
Di-dalam shara‘-nya tĕrsĕbut pula,	Thus it is said in the *shara‘*,
Kĕsal di-bĕlakang tiada paĕdah.	And regret afterwards will be of no use.

Pada sa-likor hari bulan-nya.	As regards the twenty-first day of the month.
Tiada baik apa-apa pĕkĕrjaan-nya,	It is not a good day for any work whatever;
Ajma hukama hari nahas-nya,	The learned men agree that it is an unlucky day.
Sabar dahulu apa-apa maksud-nya.	And you'd better wait patiently whatever you want.

Pada dua-likor sudah di-bilang,	Of the twenty-second day it is said
Tĕrlalu baik bukan kĕpalang,	That it is an uncommonly lucky day;
Bĕrtanam padi tiada-lah malang,	Rice planted on this day will not meet with disaster.
Kĕjadian kanak-kanak elok chĕmĕrlang.	And children begotten on this day will be of radiant beauty.

Pada tiga-likor, ayohai tuan,	As regards the twenty-third day, sirs,
Ini-lah kĕtika baik kĕtĕntuan.	It is certainly a very good day.
Kĕjadian kanak-kanak sangat dĕrmawan,	Children begotten on this day will be very openhanded,
Ibu bapa-nya dapat bantuan.	And will render great assistance to their parents.

Pada ĕmpat-likor ia-itu hari-nya,	As regards the twenty-fourth day.
Kurang baik apa-apa kĕrja-nya,	It is not lucky for any work,
Hanya-lah kanak-kanak baik jadi-nya,	With the exception of begetting children,
Di-kaseh raja-raja atau lain-nya.	Who will be loved by the king and by other people.

Atau pun sakit kĕtika itu,	But if you fall ill on this day,
Sukar sadikit mĕndapat bantu,	You will have difficulty in finding aid,
Di-dalam shara' tĕrsĕbut bagitu,	And it is said in the *shara'*
Lambat sĕmboh-nya, hati pun mutu.	That recovery will be slow and that the heart will be sad.

Pada lima-likor bulan ta' tĕrang,	As regards the twenty-fifth day of the month, the matter is not clear,
Tiada baik kĕrja sa-barang,	But it is not a good day for any work,
Nahas bulan hukama mĕngarang,	Being unlucky according to the writings of learned men;
Ini-lah kĕnyataan di-khabarkan tĕrang.	Thus it is clearly stated.

Pada ĕnam-likor bulan-nya	As regards the twenty-sixth day of the month,
Itu pun tiada baik kĕrja-nya,	It is not an auspicious day for any work,
Kĕjadian kanak-kanak baik pĕrangai-nya,	But children begotten on this day will be of good character,
Hormat dan taat ibu bapa-nya.	And will show respect and obedience towards their parents.

Pada tujoh-likor, wahai saudara,	As regards the twenty-seventh day, oh brothers,
Baik bĕrniaga lĕpas-lah mara,	It is good for trading, wherein you will escape all misfortune.
Bĕroleh untong pada kira-kira,	You will find profit when making up your accounts,
Tiada-lah ia binasa dan chĕdĕra.	And escape ruin and blemish.

Dĕlapan-likor bulan nan tĕntu	The twenty-eighth day is sure
Tĕrlalu baik pĕkĕrjaan-nya situ.	To be a good day for work.
Di-dalam shara' tĕrsĕbut bagitu,	Thus it is said in the *shara'*,
Pĕrbuat-lah apa-apa pĕkĕrjaan-mu itu.	And you may do whatever you like.

Sĕmbilan likor hari akhir-nya	The twenty-ninth day in the end
Baik pĕkĕrjaan apa-apa hajat-nya,	Will be a good day for whatever work you want to do,
Bĕrkĕbun bĕrkahwin atau bĕlayar-nya,	For gardening, marrying or starting on a voyage,
Atau pun hĕndak mĕmpĕrbuat pĕrahu-nya.	Or if you want to build a ship.

Pada tiga-puloh bulan sĕmpurna,	As regards the thirtieth day of the month,

Baik mĕmpĕrbuat sa-barang rĕnchana.	It is a good day for any work with the pen.
Baik pun laki-laki atau bĕtina,	For men as well as for women
Ini-lah shaër ada bĕrguna.	This poem will be of use.

The third chapter advises the pursuit of knowledge and warns against a licentious life. The fourth chapter treats of the unhappy life of persons in debt, and the fifth praises the happiness of people who do not incur debts or tell lies. The sixth and last chapter, lays down rules to be observed when one has to meet another person:—

Jika hĕndak bĕrtĕmu orang,	If you want to meet a person,
Bangsa yang baik atau pun kurang,	Whether of noble or humble birth,
Di-pikirkan masa kĕlapangan orang,	Think out the time it will be agreeable to him to see you,
Jangan-lah pĕrgi waktu sa-barang.	And do not go at a time chosen at random.

Barang kali orang di-dalam hal-nya,	Perhaps you may find him under circumstances,
Kita pĕrgi ka-rumah ia-nya,	Which, if we come to his house,
Nyata-lah kita kurang pikir-nya;	Would make it appear as if we had acted inconsiderately;
Di-kĕchualikan rumah ibu bapa-nya.	Excepted from this rule is the house of parents.

Orang tĕngah bĕrsuka ria,	If a man is just enjoying himself,
Bĕrsama anak istĕri ia,	In the company of his wife and children,
Jangan-lah sĕgĕra bĕrtĕmu dia,	Do not be in a hurry to see him,
Sabar-lah dahulu 'adat manusia.	As to wait is the proper custom.

Jika ia tampakkan kamu,	If he sees you by chance.
Di-tĕngah jalan ia bĕrtĕmu,	When you meet in the road,
Nyatakan suka manis muka-mu,	Show him a friendly face,
Nĕschaya hati-nya tiada-lah jĕmu.	And his heart is sure not to be displeased.

Jika pada waktu malam-nya,	At night time,
Jangan-lah kamu pĕrgi ka-rumah-nya,	On no account go to his house,
Mĕlainkan ia ada hajat-nya,	Unless there is reason,
Itu pun sudah bĕrjanji kapada-nya.	And then only if it has been agreed upon between you.

Dĕmikian pula waktu pagi,	The same holds good for the early morning:
Jangan-lah sĕgĕra kamu nan pĕrgi,	On no account go to him in a hurry:
Nantikan sadikit matahari tinggi,	Wait a bit until the sun is fairly high.
Lĕpaskan ia mandi bĕrsugi.	And he has done with his bath and the cleaning of his teeth.

Orang tĕngah bachakan hutang,	If a man is just saying the obligatory prayers,
Baik pun pagi atau pun pĕtang,	Be it in the morning or in the afternoon,
Sabar dahulu kamu nan datang,	Have patience before you go to him,
Waktu ini sangat-lah pantang.	As it is a time which is absolutely taboo.

Takutkan ini kĕsĕbalan hati,	And you must fear that he will regret it,
Kĕdatangan kita ia bĕrhĕnti,	If your coming causes him to stop.
Waktu dĕmikian hĕndak di-pĕrhati,	Thus this is the time about which you must be very careful,
Di-sĕbabkan kita jadi mĕnyakiti.	As it may lead to your offending him.

Ingat-lah oleh-mu, awang dan siti,	Do not forget, brothers and sisters,
Sangat-lah baik mĕmĕliharakan hati,	That it is well to take care to keep in good temper,
Di-amalkan baik budi pĕkĕrti,	And to take pains to be always of good disposition,
Ini-lah sa-tĕngah pĕrbĕkalan mati.	Which is half the provision for the journey of death.

Waktu orang bĕrniat bĕrkata,	At the time a man wants to speak to you,
Jangan-lah sĕgĕra pĕrgi-lah kita,	Do not be in a hurry to see him,
Takutkan ia bĕrsalahan chita,	As you must fear that he change his mind,
Walau pun dia tiada mĕngata.	Although he does not say so.

Istimewa waktu faraid bagi-nya,	Especially at the time of his obligatory religious observances,
Ia tĕngah sĕmbayang mĕngaji-nya,	When he is in the act of praying or reading the Koran,

Jangan-lah kita bĕrtĕmu sa-sĕgĕra-nya,	You must on no account be in a hurry to see him,
Nantikan lĕpas amal warid-nya.	But wait until he has done with his prayers.
Tambahan waktu maghrib dan isha,	The more so at the time of the afternoon and evening prayer,
Jangan-lah bĕrtĕmu mĕnyatakan sĕsak,	One must not come and trouble him;
Amalan orang mĕnjadi rosak,	If the meritorious deeds of a man are spoiled,
Tĕrkadang ada tĕrkĕna gasak.	One may occasionally be chidden.
Jika kamu bĕrhajat pĕtia,	If you want to be taken notice of,
Mĕnyatakan kĕsusahan yang mĕmbĕrati;	Show a sorrowful face, which will impress him;
Itu pun hĕndak kamu bĕrhati,	And this you should bear well in mind:
Di-muka pintu kamu bĕrhĕnti.	Always stop at the door!
Jika ada orang di-situ,	If you find anybody there,
Surohkan mĕmbĕri tahu yang tĕntu,	Ask that the person you want to see be informed of your coming,
Nanti-lah kamu jawab-nya itu,	And await his reply,
Dĕmikian-lah 'adat manusia bagitu.	As such is the custom.
Apabila kamu bĕrjumpa kapada-nya,	If you meet him,
Dahulukan salam hajat tangan-nya,	First salute him and request his hand,
Kĕmudian baharu bĕrkata hajat-nya,	And then only state what you want;
Ini-lah tĕrtib elok di-pakai-nya.	That is a politeness it is well to show.
Orang tĕngah kĕrja bĕrbilang,	If a man is busy with his accounts,
Jangan-lah kamu datang bĕr-ulang,	Do not look in again and again,
Hĕndak-lah kamu bĕrbalek pulang,	It is better that you go home,
Supaya jangan hati-nya walang.	That you may not upset him.
Atau pun orang minum dan makan,	Or if a man is just eating or drinking,
Jangan-lah kamu sĕgĕra dapat-kan,	Do not go to meet him in a hurry;

Mělainkan kamu yang di-hajatkan,	It is otherwise if you are the man who is wanted,
Patut-lah kamu baik měnyampaikan.	In that case it is well to approach him.

Waktu orang hampir tidor-nya,	At the time when people are going to sleep,
Itu pun jangan kamu pěrgi-nya,	At such a time, too, you should not go.
Baik pun waktu siang malamnya,	Whether during the day or at night-time;
Nantikan waktu sa-hingga jaganya.	Wait for the time when they rise.

Orang di-dalam kěsusahan těrang,	People who are obviously in trouble,
Jangan běrtěmu běrhajat sabarang,	You should not approach with any requests,
Apa-tah lagi di-těngah orang,	Especially if they are surrounded by others,
Takutkan jadi khilaf měmběrang.	As you must fear that you make a mistake and rouse their anger.

Mělainkan rumah kamu biasa,	But if it is a house where you are quite at home,
Pěkěrjaan itu kamu kuasa,	And in a matter in which you have authority,
Tiada-lah kamu měnantikan masa,	Then you need not wait for another time,
Tiada měnjadi kamu binasa.	And it will not lead to trouble.

Orang hěndak běrjalan sudah,	If the man is just going away,
Jangan kamu měndatangkan marah,	Do not risk making him angry,
Mělainkan pěrkhabaran yang ada paědah,	Unless you have news which will be to his advantage;
Tiada kamu běrhati gondah.	Then you need not be uneasy.

Itu pun orang běrsama měsěra,	Also if it is a man with whom you are intimate,
Tiap-tiap pěkěrjaan satu bichara,	And who in everything is of the same opinion as you:
Děmikian itu tiada kira;	With him you need not be so thoughtful,
Tiada-lah jadi chachat dan chěděra.	As it will not lead to reproaches and fault-finding.

Tĕngah orang mĕmasak mĕnggulai-nya,	If a person is just cooking his meal,
Jangan-lah kamu pĕrgi sa-sĕgĕra-nya,	Do not approach him in a hurry;
Jikalau pun kamu biasa kapada-nya,	Even if you are quite intimate with him,
Hĕndak-lah kamu mĕnanti pĕlawa-nya.	You should await his invitation.

Jikalau tidak pĕlawa-nya itu,	If that invitation is not forthcoming,
Jangan-lah kamu pĕrgi ka-situ,	Do not go near that place,
Supaya tĕrpĕlihara pĕrkataan ta' tĕntu,	So that you may be spared abuse,
Tiada-lah kamu bĕrhati buntu.	And not suffer uneasiness.

Mĕlainkan rumah ibu bapa yang tĕrang,	It is otherwise if you go to the house of your parents;
Tiada-lah orang mĕngata bĕrlarang,	There nobody will say that it is forbidden:
Apa-tah lagi datang-mu jarang,	Especially if you come but rarely,
Sa-tĕngah jadi kasukaän orang.	Some people will always be glad.

Patut-lah kamu pĕrgi sĕlalu,	It is meet that you visit often,
Tambahan rumah tuan pĕnghulu,	Especially the house of a chief,
Tiada-lah kamu mĕnjadi malu,	It will not bring you into disgrace,
Bĕrlain 'adat zaman dahulu.	Different was the custom of former times.

Ada pun 'adat zaman sĕkarang,	As for the custom of the present day,
Wang dan duit di-pandang orang,	People look only at money,
Jikalau pun kamu saudara yang tĕrang,	And even if it is your own brother,
Nĕschaya di-pĕrbuat-nya sa-barang-barang.	He is sure to treat you like anybody else.

Wang tiada di-dalam diri,	He has no money himself,
Tambahan pula malas di-chari,	And is too lazy to look for it.
Kĕdiaman-nya pula di-dalam nĕgĕri,	If you live in a large town,
Orang mĕlihat pun ada yang lari.	Some people will run away if they see (a visitor coming?),

Tinggal ada juga sadikit.	But a few will remain at home.
Adat dahulu waktu-nya sakit,	In former times, when a person was ill,
Ziarat juga takutkan bangkit,	The visitors were afraid to go away again,
Sampai juga naik ka-bukit,	And people even visited houses far away in the hills.

Takut tĕrkĕna kata ta' tĕntu,	As they were afraid to be spoken of badly,
Jadi ziarat juga ka-situ,	They paid their visit to the sick even in such places,
Dĕngan sĕbab dĕmikian itu,	And as such was the custom,
Jika tidak, hati-nya buntu.	They were uneasy in their minds if they did not do so.

Dĕmikian lagi, ayohai ikhwan,	There is something else, friends,
Jikalau masok pĕrhimpunan pĕrĕmpuan,	If you come into an assembly of women,
Jangan-lah mĕrĕjah tiada kĕtahuan,	Do not be unmannerly and self-assertive;
Hĕndak-lah baikkan tingkah kĕlakuan.	You should be on your best behaviour.

Jika tiada pĕrangai bagitu,	As, if you are not well-behaved,
Nyata-lah hati di-kachau hantu,	It is taken as a sign that your mind is upset by the devil,
Patut-lah di-lontar kĕpala di-lutu,	And you deserve having something thrown at you or being knocked on your head,
Orang pun banyak bĕnchi-lah tĕntu.	And many people are sure to hate you.

Tutor dan bahasa bĕrjaga-lah kita,	We must see well to our words and manners,
Sĕrta jangan bĕrpanjang mata,	And on no account cast amorous glances;
Sabĕntara bĕlum orang mĕndusta,	As long as we remain free from being slandered,
Lĕpas daripada orang bĕrchinta.	We do not belong to the people who live in sorrow.

Dudok hampir pĕrĕmpuan yang muda,	If you sit next to a young woman,
Jangan pĕrangai-mu mĕngada-mĕngada,	On no account be flirtatious;

Mĕmbaikkan chakap sadikit ta' pada,	Improve your words, of which not a single one should be indiscreet,
Supaya tĕrpĕlihara diri-mu yang ada.	In order that you protect yourself.

Apa-tah lagi istĕri nan orang,	Especially if she is the wife of another man,
Jangan sa-kali di-pĕrbuat sabarang,	You should not commit the slightest indiscretion,
Hukum shariat tĕlah mĕlarang,	It is forbidden by religious law,
Walau pun ia abdi sa-orang.	Even if she be but a slave.

Jikalau ka-rumah orang yang mulia,	If you come to the house of a man of rank,
Hĕndak-lah tĕrtib hormatkan dia,	You should show modesty and due respect;
Tutor dan bahasa tĕgohkan sĕtia,	Your words and behaviour should confirm your loyalty,
Nĕschaya kamu orang pĕrchaya.	And you may be sure that you will win confidence.

Ziarat ka-pada orang kĕsakitan,	During a visit to a sick person,
Lĕmah lĕmbut sakalian pĕrbuatan,	You should be soft and gentle in whatever you do,
Supaya tĕrpĕlihara daripada bĕntan,	That he may not suffer a relapse,
Mudah-mudahan sĕgĕra kĕsihatan.	And perhaps may quickly recover.

Apa-apa kahĕndak makan minum-nya,	Whatever he wants to eat or to drink,
Barang tiada pantang kapadanya,	Unless it is something forbidden to him,
Hĕndak-lah sĕgĕra kamu mĕnchari-nya,	You should try to obtain at once.
Supaya jangan sĕbal hati-nya.	That he may not be sad in his heart.

Apa-tah lagi saudara kapadamu,	Especially if it is your own brother,
Sa-tiap-tiap hari bĕrulang-lah kamu,	You should visit him again and again every day;
Tambahan saudara yang ada 'elmu,	So much the more if your brother is a learned man,
Sadikit jangan bĕrhati jĕmu.	You should never weary of it.

Jika kamu mĕliharakan pĕnyakit-nya,	If you nurse him in his sickness,
Dudok-lah kamu dĕngan tĕtap-nya,	You should stay with him always,
Orang sakit banyak bichara-nya,	And as sick people are apt to have much to say,
Hĕndak-lah sabar kamu kapada-nya.	You should exercise great patience with him.

Apa maksud-nya lĕbeh dan kurang,	Whatever he wishes, be it more or less,
Jangan-lah kamu sĕgĕra mĕmberang,	On no account show a quick temper,
Jangan di-lawan kata yang garang,	And do not contend against him with angry words,
Apa-tah lagi di-tĕngah orang.	Especially in the presence of other people.

Sĕbab kĕrapa dĕmikian itu,	Thus it should be done because
Orang yang sakit hati ta tĕntu,	A sick person is of uncertain temper,
Bĕsar pahala-nya kita mĕmbantu,	And great is our merit in coming to his assistance,
Tĕtapi dĕngan ikhlas bagitu.	But it should be done with a sincere heart.

In the concluding verses the author preaches gentleness and self-restraint and abstinence from all vice as the way to happiness in this world and the next.

A set of Alphabet Pantuns.

Alphabet pantuns are not uncommon but none have ever been printed in this Journal. The following learned set were written about 20 years ago by a Perak court poet, Raja Haji Yahya, in the time of Sultan Idris.

ا Alif pĕrtama awal di-tulis;
Nyata-lah tĕrdiri huruf sakalian.

Tĕrsalah mimpi di-haru Iblis
Rasa-nya di-timpa Gunong Bĕlian.

ب Baju layangan, kain sampaian
Di-kurniaï Baginda Nila-Suba.

Rasa-nya di-timpa Gunong Bĕlian
Mimpikan bulan jatoh ka-riba.

ت Tajok mas Nila-Sagurba
Pĕrbuatan galoh puspa kĕnchana.

Mimpikan bulan jatoh ka-riba,
Chahaya-nya lempah di-dalam astana.

ث Thalatha bĕrangkat Maharaja China
Mĕlanggar nĕgĕri Kĕmbayat Nĕgara.

Chahaya-nya lempah di-dalam astana
Ashek bĕrahi edan asmara.

ج Jayeng Bĕranta Kĕsoma Indĕra
Di-nĕgĕri Jawa sangat pilehan.

Ashek bĕrahi edan asmara
Tĕrkĕna maadzar[1] dĕngan warjan[2]

ح Habĕlor chĕrmin Maharaja Garhan
Di-sambar oleh si-burong Gĕroda.

Tĕrkĕna maadzar dĕngan warjan
Oleh tĕrpandang paras adinda.

خ Khalbak tiang pancha pĕrsada
Bĕrsiram gĕlar bĕrsalin nama.

Oleh tĕrpandang sifat adinda
Mĕrobohkan iman tiang ugama.

د Daun budi bĕrtatah dĕlima
Pĕrbuatan tukang dari Andalan.

Mĕrobohkan iman tiang ugama!
Dahi sapĕrti sa-hari bulan.

معظر 1) *intoxication* 2) ورجن 2 *scent, perfume.*

ذ Dzamin 'Iran di-tĕngah jalan
Di-sa-bĕlah kanan Laut Surati.

Dahi sapĕrti sa-hari bulan
Sĕnyum sadikit mĕnghanchorkan hati.

ز Zulaikha a hek dudok bĕrchinta,
Bĕrtĕmu Yusuf sangat-lah payah.

Sĕnyum sadikit mĕnghanchorkan hati
Mĕnggugorkan iman taufik hidayah

س Sir Idris mĕmbĕri hadiah
Fasal kesah dan bĕrshaeri.

Mĕnggugorkan iman taufik hidayah
Ariningsun kĕmala nĕgĕri.

ش Shamsu bahar chahaya bĕrsĕri,
Chantek mĕjĕlis rupa-nya lĕngsu[3].

Ariningsun kĕmala nĕgĕri,
Silakan tĕmpat kakanda bĕradu.

ص Sah-lah ada buloh pĕrindu.
Bunyi-nya mĕrdu mĕrawan-rawan.

Silakan tĕmpat kakanda bĕradu,
Adinda di-ulek di-dalam pangkuan.

ض Zillu'llah fi'l-'alam yang di-pĕrtuan
Di-atas singgasana bĕrsĕmayam bĕrtakhta

Adinda di-ulek di-dalam pangkuan
Ingsun pĕkulun tajok mahkota.

ط Tabal sudah orang bĕranta
Desa gunong mĕrchu sakti.

Ariningsun tajok mahkota
Ĕmas tĕmpawan ratna gusti.

ظ Dzulmat tiada kĕlihatan pĕsti,
Tiada-lah tĕntu pĕdoman haluan.

Ĕmas tĕmpawan ratna gusti,
Pĕnyudah-nya kaseh kapada-nya tuan.

ع 'Alat pĕpĕrangan mambang di-awan
Chogan tĕrdiri di-atas kota.

Pĕnyudah-nya kaseh kapada-nya tuan
Tiada-lah abang bĕrdua-chita.

---

3) لڠسو

غ Ghalib bĕrpĕrang dĕngan sĕnjata;
Rayat nan banyak mati dan lari.
Tiada-lah abang bĕrdua-chita,
Hanya-lah tuan gunong baiduri.

ف Pĕrahu kĕnaikan dewa shah pĕri,
Bĕrangkat ka-laut ia bĕrmain.
Hanya-lah tuan gunong baiduri,
Paras laksana huru'l-ain.

ک Kĕris sĕmpana bĕrsimpul kain
Pĕnokok bĕrsĕlang dĕngan tĕmbaga.
Paras laksana huru'l-ain,
Itu-lah nama anakan shurga.

ل Kalam perak pen tĕmbaga.
Mĕnulis surat di-atas meja.
Itu-lah nama anakan shurga
Ariningsun ratna pĕkacha.

ق Lapang medan gĕlanggang raja
Batu marmar lichin dan sĕjok.
Ariningsun ratna pĕkacha
Adinda, weh! Mari! Kakanda pujok.

م Mustika gamat di-buatkan tajok,
Di-sunting baginda di-atas takhta.
Adinda weh! Mari, kakanda pujok!
Jiwa-ku! Jangan bĕrkĕchil chita.

ن Nakhoda bĕrlayar sukachita.
Kĕmudi di-kisar, layar tĕrkĕmbang.
Jiwa-ku! Jangan bĕrkĕchil chita,
Mĕmbĕri kĕsu ahan di-kalbu abang.

و Waham hati unggas yang tĕrbang,
Takut di-panah Sang Yang dewata.
Mĕmbĕri kĕsusahan di-kalbu abang
Adinda, weh! Dĕngar kakanda bĕrkata.

ه Halaman mĕjĕlis bagai di-pĕta,
Tembok bĕrukir, taman bĕrawan.
Adinda weh! Dĕngar kakanda bĕrkata!
Jangan-lah bĕrkisar pĕdoman haluan.

لاء Lam alif hamzah huruf bĕrkawan
Kĕtiga-nya nyata di-dalam surat.
Jangan-lah bĕrkisar pĕdoman haluan,
Takut ka-bĕting jong ka-darat.

ي Ya sunggoh di-dalam mashuarat.
Sakalian fikiran sĕmua sa-kutu.

Takut ka-bĕting jong ka-darat,
Binasa-lah gĕrangan bahtĕra itu.

چ Chĕmar di-lotar dĕngan-nya batu!
Lantas tĕrbang ka-tĕngah huma.

Binasa-lah gĕrangan bahtĕra itu.
Nakhoda mati juru-mudi bĕrsama.

د Dalima buah-nya kĕrama,
Buah anggor sa-tangkai lapan.

Nakhoda mati, juru-mudi bĕrsama
Suatu kubor, sa-kain kafan.

غ 'Ngambang bulan tangga di-hadapan,
Budak bĕrmain mandi kuda.

Suatu kubor sa-kain kafan.
Dĕmikian-lah tamthil ibarat kakanda.

ڤ Pĕnyuroh utus Raja Bĕlanda
Mĕnyatakan maksud yang di-taarifkan.

Dĕmikian-lah tamthil ibarat kakanda.
Adinda pun dĕmikian abang pohonkan.

ݢ Gasing kĕpayang bĕrtut di-namakan.
Tukang ta' pandai, tiada upaya.

Adinda pun dĕmikian abang pohonkan.
Sila-lah simpan sakalian rahasia.

ڽ 'Nya 'itu huruf tĕramat mulia.
Pĕnyudahan kata panjang dan pendek.

Sila-lah simpan sakalian rahasia,
Jangan-lah tĕrpandang kapada yang chĕrdek.

Khatam-lah sudah pĕnyudahan kata,
Daawat bĕrchampor dĕngan ayer mata;
Siang dan malam dudok bĕrchita,
Tĕrkĕnangkan untong nasib yang lĕta.

R. O. WINSTEDT.

Some Malay Mystics, Heretical and Orthodox.

BY R. O. WINSTEDT, M.A., D. LITT. (OXON.).

One of the most remarkable things about the University of Leiden is the mature and original work submitted by its graduates for the degree of Doctor in the Linguistics and Literature of the East Indian Archipelago. This paper is no more than a summary of a chapter out of H. Kraemer's brilliant thesis, *Een Javaansche Primbon uit de Zestiende Eeuw* (Leiden 1921) with some notes and references to English works that are likely to be accessible to English students.

The chapter in question deals with certain XVIth century mystics of Islam, connected with the north of Sumatra, that is, with two heretical mystics Hamzah Fansuri and Shams al-Din of Pa ai, and the famous orthodox mystic, Nur al-Din, the author of the *Bustan al-Salatin*. The interest of these men for us lies in the fact that the doctrines of which they were the inheritors and exponents attracted the Peninsular Malay with a bent for religion, at least as far back as the middle of the XVth century, when Sultan Mansur Shah sent an embassy from Malacca to Pasai to propound a Sufi problem[1].

Hamzah Fansuri means Hamzah of Barus, the place in Sumatra that gave its name to *kapor Barus* or camphor. In one of his own poems[2] he described himself as coming from Acheh "which belonged to *Marhum Makota 'Alam*," so that, unless those words are an interpolation, he lived after 1636 A.D., the year when that famous Sultan died and acquired his posthumous title of "Crown of the World." Elsewhere[3] Hamzah records how he went in search of truth to Banten, Kudus and Pahang:—*da'im bĕrjalan di-Pahang nama nĕgĕri; dari Banten ka-Pahang tĕrlalu payah*. He visited Mecca and Medina and was initiated into the Qadariya order:—

Bĕroleh khilafat ‘ilmu yang ‘ali
Pada ‘Abd-al-Kadir, Sayid Jilani.

The founder of the order was regarded as a saint in the Malay Peninsula, it may be remarked:—*vide Misa Mĕlayu* (ed. Winstedt, Singapore, 1919, p. 79) and Skeat's *Malay Magic*, p. 652. Frequently[4] Hamzah speaks of Shahr an-Nawi (= NewCountry = Ayodya[5]), a residence of Siamese royalty mentioned in the "Malay Annals,"[6] as a place of importance in his spiritual life. Perhaps it was because Hamzah was so great a traveller and not a permanent

1) *Sejarah Melayu*, chapter 20 and J.R.A.S. S.B. No. 86. 1922, pp. 264-5 2) Leiden Library's Codex 2016. p. 95. 3) Codex 2016 (2), Juynboll's Catalogus pp. 34, 35. 4) Codex 2016, p. 53; Cedex 3374, p. 24. 5) G. P. Rouffaer, *Bij. T. L. en V. van N.E. Deel 77*, 1921 p. 549. 6) *Sejarah Melayu*, Chapter. 13.

settler in Acheh, that his name is omitted from the careful list of Shaikhs and teachers given in the thirteenth chapter of the *Bustan al-Salatin*. In a less famous work[7] by the same author he is mentioned along with Shams al-Din of Pasai as a heretic with many followers.

The sub-title of several of Hamzah's works, "the elucidation of the mystic way to God and Unity" gives their spirit. His doctrines were not original. His poems are full of Arabic words and display acquaintance with the erotic mysticism of Persian poetry. Nur al-Din calls the followers of Hamzah and Shams al-Din after a name (*Wujudiyya*) applied to the adherents of the famous Ibn 'Arabi,[8] who along with the author of the "Perfect Man"[9] is constantly quoted by Hamzah.

For Hamzah Allah is the first and sole and absolute Being (*wujud mutlak*). Of His many names, *huwa* (used in *zikr* ritual) gives the sense of self-contained Being. A round berry (*buah bunlar*) or a circle (*da'ira*) serve as symbols for the essence (*dzat*) of God. God contains all being and all worlds, subject and object, lover and beloved, heat and cold, good and evil, the Ka'bah and the heathen temple. If these opposites were not hidden as original dispositions (*isti'dad asli*) in the essence of God, He could not be called perfect. Only God exists: the world is but appearance, (*wujud wahmi*) like the reflection in a glass. Following Ibn 'Arabi, Hamzah boldly accepts all Being as not only one but necessary. It is not the arbitrary will of God but the necessity of His Being that makes one man a Muslim and another not.

Orthodox Muslims hold that it is not the essence but the knowledge (*'ilmu*) of God that embraces all. This might be illustrated by a passage from the *Taj al-Salatin* (chapter IV), where man is pictured as existing unconsciously within the knowledge of God, just as a fish exists unconsciously within the embrace of the water that gives it life. But for heretical mystics (*ahl al-suluk*) like Hamzah, the essence and the knowledge of God are one, only the former is the wider category. As Absolute Being, God is as a sea (*bahr al-butun, bahr al-kidam*) rippleless, immobile, with potential waves, that stirred by His creative word (*kun fayakun*) have come to represent the world of appearance but always have the reality (*hakikat*) of the sea. Neither sea nor waves can cease to be or suffer destruction, neither God nor the world. Attributes (*sifat*) and absolute being (*'ayn dzat*) are identical. Hamzah borrows an illustration from Ibn 'Arabi, which is mentioned in the Book of Bonang: all that the universe contains lies potential in God like the tree (*pohon*) in the seed (*biji*). So for Hamzah but not for the orthodox the word of creation (*kun*) merely raised something existent already, though unmanifested, in God's secret treasure (*kanz makhli.*)

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7) *Tabyan fi ma'rifat al-ajan.* 8) R. A. Nicholson's "A Literary History of the Arabs," pp. 399-404, London 1914. 9) Nicholson's "Studies in Islamic Mysticism," Cambridge, 1921.

It will make for clearness to outline here the leading principles of the Neo-Platonic system, which took definite shape under Plotinus (died 269 A.D.) and came to the Muslim world mainly from the abridgement known as the "Theology of Aristotle." "In the teaching of Plotinus God is the Absolute, the First Potency, beyond the sphere of existence and beyond reality; that is to say, all that we know as existence and being is inapplicable to Him and He is therefore unknowable, because on a plane beyond our thought. He is unlimited and infinite and consequently One, as infinity excludes the possibility of any other than Himself on the same plane of being...... As Absolute, God implies a compelling necessity so that all which proceeds from Him is not enforced but is necessarily so in the sense that nothing else is possible. Yet Plotinus will not allow us to say God 'wills' anything, for will implies a desire for what is not possessed or is not yet present; will operates in time and space but necessity has for ever proceeded from the Eternal One who does not act in time. Nor can we conceive God as knowing, conscious or thinking, all terms which describe our mental activities in the world of variable phenomena; He is all-knowing by immediate apprehension which in no way resembles the operation of thought but is superconscious, a condition which Plotinus describes as 'wakefulness,' a perpetual being aware without the need of obtaining information.

" From the true God, the eternal Absolute, proceeds the *nous*, a term which has been variously rendered as Reason, Intellect, Intelligence and Spirit, this last being the term which Dr. Inge regards as the best expression, and this *nous* is fairly equivalent to the Christian *logos*. An external emanation is necessitated in order that the First Cause may remain unchanged, which would not be the case if it had once been a source and then had become the source of emanation: there can be no 'becoming' in the First Cause. The emanation is of the same nature as its cause, but is projected into the world of phenomena. It is self-existent, eternal, and perfect, and comprehends within itself the 'spirit world,' the objects of abstract reason, the whole of the reality which lies behind phenomena; the things perceived are only the shadows of these real ones. It perceives, not as seeking and finding, but as already possessing, and the things perceived are not separate or external but as included and apprehended by immediate intention.

"From the *nous* proceeds the *psyche*, the principle of life and motion, the world soul which is in the universe and which is shared by every living creature. It also knows, but only through the processes of reasoning, by means of separating, distributing and combining the data obtained by sense perception, so that it corresponds in function to the 'common sense' of Aristotle."[10]

Following this Neo-Platonic theory of the emanation process of Being, Hamzah explains the relation of God to the world.

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[10] D.L. O'Leary's "Arabic Thought and its Place in History," pp. 19-21. London, 1922.

Highest of all is the plane of Absolute Being beyond all relations, the plane of the immobile sea (*laut tĕtap*), of the unrevealed (*la ta'ayyun* or *tiada nyata*), which neither intellect (*budi*) nor gnosis (*marifat*) can fathom.

After that Hamzah describes the descent of " the world of command" (*'alam al-amr*), that is, of the invisible or intelligible wirld to the phenomenal world as a circuit with six planes (*martabat*) :—

(1) The first plane in the process whereby Pure Being gradually becomes qualified, the initial individualisation (*ta'ayyun awal*) contains knowledge, which includes the knower (*'alim*) and the known (*ma'lum*) ; existence, which includes creator and creature; vision (*shuhud*), wherein are embraced the seer and the seen; and light (*nur*), wherein are included the giver and receiver of light. This is the plane of the undifferentiated, or, to employ the favourite figure, of the sea and its surging waves.

(2) In the second stage the knower contemplates himself (*'alim mĕmandang diri*). This is the plane of knowledge (*ma'lumat*) or of fixed archetypes (*'ayn thabita*), the essences of things as they exist from eternity in the Divine knowledge, the essences of things as eternal ideas and therefore actual (*hakikat al-ashya*).—The problem which Sultan Mahmud of Malacca propounded to the Sultan of Pasai, that any one who believed that God had created and bestowed His gifts from all eternity was an infidel and that any one who disbelieved it was also an infidel.[11] was a paradox about these fixed archetypes, or in effect, about the nature of the relation of God to the world.—This plane is called also the plane of the *ruh idafi*, or as Hamzah translates it, the *nyawa bĕrchampor*, the Archetypal Spirit that constitutes the form of every sensible object. The sea evaporates but by virtue of its essence it is still the sea.

(3) In the third stage there is further particularisation into human, animal and vegetable spirit (*ruh insani, ruh hayawani, ruh nabati*). The *'ayn thabita* are differentiated into External Archetypes (*'ayn kharija*). The evaporation from the sea has changed into clouds.

(4-6). In the next three stages the material world is reached. Through the word of creation, the clouds change to rain, that feeds the rivers of the earth.

But rivers return to the sea, the phenomenal world to its origin in God. Absolute Being is a sea unaffected by the issue or return of rivers. So the process of emanation "comes full circle."

Next, Hamzah deals with the relation of God to the human soul. Absolute Being is identical with the spiritual essence of man. (*hakikat diri*). Such is the heretical construction of the verse in Koran[12]: "Whithersoever ye turn, there is the face of God." This identity is proved by the stage of gnosis, when the veil (*hijab*) between lover and beloved falls away. The image of a bird (*unggas tĕrlalu pingai, tayr al-'uryan* or *nuri*) symbolizes the spirit of man in complete unity with God and symbolizes God as the "secret treasure;" for man's spirit in its most secret state and God as unmanifested Being are identical. In its lower nature the bird is identified with the invisible intelligible world, wherein Muslim mysticism has placed the Koranic attributes of the divine revelation and allegorized them as the Pen, the Guarded Tablet and so on. The first emanation projected from the essence of God is called under different aspects the Radiance, incarnated in the Prophet (*nur Muhammad*), the Spirit (*ruh*), the First or Universal Intelligence (*'akl awal*), the Guarded Tablet whereon the Pen wrote the original of the Koran and all that should happen till the last day, the Archetypal Spirit.[13]

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[11] *Sejarah Melayu*, chapter 82. [12] Sura 2:109. *Fa'aynama tuwallu fathamma wajah Allah.*

In the circle of Being man is the turning point: in him is accomplished the return (*tarakki*) of the outflowing process to the original Unity (*tauhid*). According to al-Jili, whose "Perfect Man" had so much influence on Malay mysticism, man is the copy (*nushka*) of all Being, a microcosm that includes the macrocosm, the reflected image of God. So, "who knows himself, knows his Lord." Man's return to God is not merely an intellectual process. The knowledge and love of God are identical.[14] The mystic is drunk with the wine of God, Who is at the same time chalice (*takar*) and wine (*arak*).[15] To accomplish the return to Absolute Being (*bĕrtĕmu dĕngan dzat mutlak*), man must be a friendless wanderer (*dagang piatu*), free from all ties (*kujud*). Love of the world leads to all sin; forsaking the world to all piety:—

Hubb al-dunia ra's sĕgala khati'at;

Tark al-dunia sirr kull 'ibadat.[16]

The lover of God always has union with Him.

Hamzah miskin orang 'uryani,

Bukan-nya 'Ajam lagi 'Arabi,

Sĕntiasa wasil dĕngan yang baki.[17]

"Hamzah, poor and naked, neither Persian nor Arab, is ever intimate with the Eternal."

Having destroyed individual existence, yet Hamzah, outwardly at least, accepts Muslim law as a torch held out by the Prophet to seekers of the way. Of course, as a member of the Qadariya order, he dismisses walking on water, eating fire and flying as false expedients (*ubatan dusta*) and not signs of divine grace. To live in solitude, to hypnotize oneself by staring at navel or nose he condemns as means of union with God:—

13) Hamzah's *Asrar al-'arifina* and Nur al-din's *Asrar al-insan.* 14) Hamzah's *Sharab al-'ashikina.* 15) Codex 2016, pp. 79 and 90. 16) Codex 2016. p. 17 and Cod. 3374 p. 32. 17) Codex 2016 p. 77.

'Ilmu Allah jangan kau-gantong
Di-paru-paru atau di-balek jantong.

Shams al-Din ibn Abdullah al-Ṣumatrani came from Pasai in its decay. He mentions a Javanese, Pangeran Bonang, as one of his teachers. He is said to have died in 1630 A.D.[18] Of all but one of his works only excerpts remain. But his doctrines are known. All but God, even man, is only appearance (*wahmi*, *nama-nama-an*),[19] only the reflection thrown on the screen by the hand that moves the puppets (*dalang*)[20] in a shadow-show.

His school talks not only of the seven stages in the process of emanation described by Hamzah but of *ahadiyya*, *wahda wahidiyya*, *'alam arwah*, *'alam mithal 'alam ajsam* and *'alam insan kamil*. Most of these common terms of Muslim mysticism are explained for English readers in Nicholson's "Studies in Islamic Mysticism" (Cambridge, 1921), in definitions translated from Al-Jili. *Ahadiyya* is Being conscious of itself as one, Being first approaching manifestation. *Wahda* is the unity of the self effected by stripping it of attributes and relations. *Wahidiyya* is Being, identifying itself as one with itself as many, so that all distinction between attributes, mercy and vengeance for example, is lost. Below the world of Spirits is the World of Similitudes, the Muslim term for Platonic "ideas," ready to be materialized in the physical world. The *'alam ajsam* is a world of fine corporeal substances that cannot perish or be perceived by the senses. Next comes the World of Man and lastly the World of the Perfect Man, of whom al-Jili writes. Highest of all is the plane of absolute transcendence (*tanzih*), as God is in Himself, which only He can conceive or know. After the analogy of human knowledge, where self-conscious thought discovers the I and not-I, so the process of differentiation and manifestation in the Divine Self evolves through God brooding upon Himself (*mĕnilek diri*). Man is the image and reflection of God. "To know one's self is to know one's Lord."

Nur al-Din, the author of the Bustan al-Salatin, came from Ranir in Bikanir in Rajputana.[21] He arrived in Acheh in May 1637 A.D.[22] and is said to have returned to his native place seven years later.[23] In one of his works[24] he described himself as "the cup-bearer of the Prophet, who carries around the cup of the drink offered by him" (*saki al-Rasul ia-itu yang mĕngidarkan piala minuman Rasul*). Besides other works he wrote several polemical treatises against the heretical mystics, who hold God and the world and man to be one (*sa-bangsa*), thereby detroying theism, making God not the creator but only an idea, making the world either an empty show or else eternal, leading man like Pharaoh to regard himself as God. He condemned Hamzah's similes and compared

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18) ***Bustan-al-Salatin*, Chapter 13.**

19) Codex 1832, fol. 17 a, Cat. Juynboll p. 288. 20) *ib.* fol. 14 b.

21) G P. Rouffaer, *ib.* p. 465. 22) J.R.A S., S.B. 82. pp. 151-2. 23) van Ronkel's Catalogus p. 514. 24) *Akhbar al-akhira*, Cod. 1960. p. 91, Juynboll's Catalogus p. 274.

his views with those of Indians who believe in incarnation (*hululiyya*) and metempsychosis (*sumaniya*). The holders of such doctrines are heretics, freethinkers and infidels (*mulhid, zindik, kafir*). There are false mystics like Hamzah and Shams al-Din (*orang yang bĕrsufi-sufi*) and orthodox mystics (*sufi yang ahl Allah*) like Ghazali, Fakhr al-Din, Shihab al-Din al-Suhrawardi, Abu Talib al-Makki, Abu al-Kasim al-Kushayri, Ibn 'Arabi and 'Abd al-Karim al-Jilani.

For Nur-al-Din the world possesses only metaphorical being (*wujud majazi*) and can be called the shadow of God as dependent on Him but not as emanating from Him. His *Asrar al-insan* gives a clear account of mediaeval Muslim cosmogony. The argument is that the spirit (*ruh*) is not eternal (*kadim*) but the first of created things (*muhdath*):—an orthodox answer to Sultan Mahmud's problem. The Supreme Spirit (*Ruh a'zam*), whence all human spirits derive their powers, the Holy Spirit (*ruh kudus*) or spirit viewed as eternal in relation to God, the Throne, the White Pearl (*al-durra al-bayda*), the Radiance (*nur*) of Muhammad, the Pen, the Primal Logos (*'akl awwal*), the Revealed Book (*kitab mubin*), the Mother of the Book (*umm al-kitab*) or fundamental part of the Koran, the Guarded Tablet, are all identified, because the Koran speaks of them as the first created things (*'awwalu ma khalaka Allah ruhi*). In other words the Spirit (*ruh*) has many names according to its aspect (*i'tibar*), and, especially under the aspect of the Radiance of Muhammad, is the cause of all, containing in itself the divine prototypes of things. The Spirit in all its aspects, together with heaven and hell, belongs to the invisible intelligible world (*'alam al-amr, 'alam al-malakut*), directly created by the word *kun* and imperishable (*baki*). The visible (*'alam shahada*) or created world (*'alam al-khalk, 'a. al-mulk*) contains all created through a means (*wasit*) and is perishable (*fana*).

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A Survey of the Dragonfly Fauna of the Malay Peninsula, with notes on that of Neighbouring Countries.

Part I.

By F. F. Laidlaw, M.A.

Odonata.

Carnivorous insects, with biting jaws and two pairs of richly veined wings. With incomplete metamorphosis and no pupal instar, wings developed externally. In the adult the compound eyes are large or very large, ocelli present; antennae reduced and bristle-like. Head very freely moveable on a small prothorax which is distinctly segmented off from the synthorax. This latter consists of fused meso-, and meta-thorax, in which the tergites are extremely reduced, whilst the lateral sclerites are greatly developed, and lie with their dorso-ventral axis in an oblique position, so that the wing-bases are carried back and do not lie vertically over the corresponding legs. These are not adapted for walking on a plane surface, but for clinging or for grasping prey, and owing to the obliquity of the synthorax they are so placed that they can readily carry any object seized to the mandibles.

Abdomen long and usually rather slender, consisting of the complete segments with vestiges of an eleventh segment, and terminal appendages. Males with genital pore on the sternite of the ninth abdominal segment, and with a complicated copulatory apparatus developed from the sternites of the second and third abdominal segments. Terminal appendages adapted as 'claspers.'

Females with genital pore in the suture between eighth and ninth segments of the abdomen. Ovipositor complete or reduced.

In the larva the body may be flattened dorso-ventrally or to some extent laterally according as to whether the insect is a bottom-living or free-swimming creature. A remarkable feature of the larval organization is the 'mask,' a prehensile apparatus consisting of the sub-mentum, mentum and labial palps. The mentum is elongated and hinged on to the sub-mentum in such a manner that it can be projected forward in front of the head of the larva, carrying at its distal end the strong labial palps which act as raptorial pincers.

The larval legs are adapted for crawling or for burrowing in mud. The wings appear at about the fourth instar as small swellings on the pleural ridges of the synthorax. Respiration in the larva is effected either by a specialized rectal branchial apparatus (internal) or by external gills which are commonly caudal, but in two subfamilies paired gill-like structures are developed on some of the abdominal segments ventrally.

The venation of the wings is of great systematic importance, and it is necessary to explain the terminology employed, which is based on Needham's well-known work "A Genealogic Study of Dragonfly Wing Venation" (Proc. U. S. Nat. Mus. XXVI 1903, pp. 703-764 Pl. XXXI-LIV). Some modification in his notation is made here, notably the use of the term *MS* for the Zygoptera. Ontological and Palaeontological research now being carried out by Dr. Tillyard is tending to show that the homologizing of the main veins (and tracheal trunks) of the dragonfly wing with those of the wings of other insects is not a simple matter, hence the nomenclature, intended and at first believed to indicate undoubted homologies, must be regarded rather as entirely tentative and liable to considerable alterations.

The main longitudinal veins of the adult wing are preceded in the larval wing-case by longitudinal tracheae, and these are given the same names as the veins. Important branches of any main vein are numbered from before backwards X1, X2, etc. and it follows that the outermost branch, as being necessarily the most anterior, is spoken of as the first branch.

Certain areas of systematic importance at the wing base are given the name of the vein bounding them anteriorly, thus the costal-space is the space lying immediately behind the costal nerve.

Secondary longitudinal veins, developed in the more richly veined genera may be either marginal, when they are spoken of as supplementary to the main vein immediately in front of them and given a notation X1a, X1b, etc., or if not marginal they are called 'supplements' to this main vein immediately in front of them and indicated thus Xspl.

Such supplements or supplementary veins are apparently formed by the straightening out of a line in the network of cross-veins in response to mechanical requirements.

A special area of the wing, the quadrangle of the Zygoptera and the 'triangles' of the Anisoptera, is spoken of as the discal cell.

The anterior margin of the wing is formed by the costal vein *c*. This has no tracheal precursor in the larva, or at most only a vestigial one. The costal vein or 'costa' is unbranched. At a point in its course generally at or before the middle of the wing-length the costa is 'kinked' and at this point is joined by the upturned end of the main longitudinal vein next behind it, the subcosta. This point is called the nodus, and is a characteristic feature of all dragonfly wings.

Near the apex of the wing there is a cell lying immediately below the costa, and bounded behind by the radius, which has thickened margins and is generally dark in colour. This is the 'pterostigma', which in the Anisoptera is usually much longer than it is broad. It probably serves to strengthen and perhaps to weight the cutting edge of the wing. In a few Zygoptera it may be absent altogether.

The next main vein the *Sub-costa, Sc,* has a well developed tracheal predecessor. It is unbranched, and terminates always at the nodus.

Behind it is the *Radius, R,* also with a tracheal predecessor. In the Zygoptera this vein (and trachea) runs to the wing apex without branching. In the Anisoptera, at the level of the nodus the *trachea, R,* gives off a branch usually called the *Radial sector, Rs.* This branch *crosses over* the first two branches of the next main longitudinal trachea, the *Media,* and reaches the wing margin behind them. In the adult the vein *Rs* is carried back towards the wing base to join the branch of the *Media* which further out bifurcates to become veins M1 and M2 so that *vein Rs* has a distal part preceded by *trachea Rs,* and a basal part which has no definite tracheal predecessor. This basal part is spoken of as the "bridge-vein." The point at which the tracheal part of Rs begins is always indicated in the adult by the obliquity of a cross-vein between it and M2, marking the original course of the trachea.

[Tillyard suggests that the condition found in the Zygoptera to be noted immediately is primitive, and that the *adult* condition of the Anisoptera conforms to this, whilst the tracheal condition of the Anisoptera is a consequence of specialization of the tracheae of the neighbourhood, and the beheading of one or more main branches by another.]

Next behind the radius comes the *Media, M,* (so-called at present.) The *trachea M* runs for the first part of its course very close to the radius. Some little way out it bends backwards, the bend forming the upper limit of a transverse or nearly transverse structure of importance in the adult wing, called the *arculus.* The lower limit of the arculus is formed by a cross-vein, without a strong tracheal precursor, which runs to the next posterior longitudinal vein, the *cubitus.*

After bending to form this upper limb of the arculus the media immediately bifurcates. The anterior of the two branches in its turn gives rise to four branches in the Zygoptera and to three in the Anisoptera, and for this part of its course is referred to as M1+3. The first branch it gives off, the most posterior, is M3. Then in Zygoptera it gives off usually at or after the level of the nodus, another branch whose course exactly corresponds to the bridge-vein plus the tracheal part of Rs of the Anisoptera. This branch "the Zygopterous sector," is labelled Ms to emphasize this resemblance. The branches M2 and M1 lie much nearer the apex of the wing, and the part of the trunk distal to Ms which carries them is referred to as M1+2. All these branches run to the wing margin in a fairly direct course.

M4 as it leaves the *arculus* bounds anteriorly the small but important *discal space* or *cell.* This as already noted, in the Zygoptera is a quadrangular space, whose inner margin is formed by the lower limb of the arculus. In the Anisoptera the discal space is always divided into a *supra-triangle* and *triangle* by a vein lying longitudinally. This vein has no tracheal precursor. Beyond the discal area M4 is continued out to the hind-margin of the wing.

In the adult it should be noted that the Media as far as the level of the arculus is not merely in close contiguity with the Radius but is actually fused with it, and the bend it makes away from R at the arculus instead of being curved is generally almost rectangular; whilst M1-3 and M4 appear to originate from the arculus itself.

Next in order is the *Cubitus, Cu,* with trachea and vein. This runs outwards without branching as far as the distal end of the discal cell, at which points it breaks up into two branches numbered Cu1 and Cu2 respectively.

In some Zygoptera the branching away of vein *Cu2* is quite rectangular and the vein is produced backwards by a 'bridge-vein' called the *anal-bridge* which may run to join the anal vein at Ac, or may join the anal margin of the wing more or less distal to Ac. The petiolation of the wing is said to cease at the proximal end of this bridge-vein.

In certain genera vein *Cu2 is* lost altogether, it has so to speak 'moved off the field.' In some of these genera the anal-bridge vein is retained but in others even that may be lost. In a few cases even *Cu* may have nearly edged off the wing altogether. This curious method of reduction of complexity of venation seems to have occurred independently in several widely separated sub-families —*Libellaginae, Platycneminae, Platystictinae.*

Last of all the *Anal trachea, A,* runs in close company with the trunk of *Cu* for a short distance. It then turns abruptly backwards giving rise to a cross nerve in the adult called the *anal crossing, Ac.* In the Anisoptera the anal trachea then gives off four principal branches, one of which called the *recurrent anal vein, Ar,* runs back to the base of the wing. In the Zygoptera this recurrent branch is the only branch of importance, and it may form the actual anal margin of the wing between *Ac* and the wing base.

The other branches in the Anisoptera take part in forming the anal loop of the adult wing.

The anal vein from its commencement to the point where it diverges to form *Ac* in the adult wing is fused with the trunk of the *cubitus.*

The genital structures of Dragonflies are unique amongst Insects in that the intromittent organ of the male is situated on the ventral side of segments 2 and 3 of the abdomen remote from the external opening of the genital glands. The intromittent organ is complicated and shows important differences of structure in the two sub-orders. Each species furthermore has its own characteristic differences in detail so that, as Kennedy especially has shown, the characters of the organ can be usefully employed in the discrimination of species. As however microscopic preparations are required for its study, and because as a rule species can be discriminated by more easily available methods I do not propose to go into any detail over the matter.

In addition the male is provided with 'claspers' or 'anal appendages.' In the Zygoptera these consist of an upper and a lower pair. The upper pair are derived from the 'cercoids' of the tenth segment of the abdomen, the lower pair from the cerci of the vestigial eleventh segment. In the ca·e of the Anisoptera there is an upper pair homologous with that of the Zygoptera, but instead of a lower pair there is a single median 'lower' appendage which is derived from the tergite of the eleventh abdominal segment (This tergite is present in the larvae where it is called the *processus dorsalis*).

The female retains the upper pair of anal appendages apparently as vestigial structures in both suborders.

These appendages of the male are of the greatest use in discriminating closely allied species in very many cases especially amongst the Zygoptera.

It is evident that the union of the sexes is conducted on a different plan to that which usually obtains on insects. As the process is complicated and a little difficult to follow I think. I cannot do better than quote *in extenso* Ris' transcription of the clear account given by Dr. Wesenberg-Lund—

"The male seizes his mate first with his spiny feet, takes for a moment a position on the head of the female, at which moment the spermatic fluid is transmitted from the opening on the eighth to the copulatory apparatus on the second segment, then the male takes hold of its mate by the terminal appendages (claspers), which are applied to the prothorax in Zygoptera. to the head in (at least most of) the Anisoptera; the female, somehow aided by the male, curves her abdomen (under her own head) so that her genital opening will join the male's second sternite, and the act is thus consummated. In most cases its later stages take place on some supporting plant or even on the ground; but there are some remarkable cases (*Libellula quadrimaculata* of Europe for example) when the entire complicated function is performed whilst the two actors continue their rapid flight and in these cases it lasts only a few seconds. In other cases it may last for hours."

The eggs are laid by the female either in the tissues of water plants (most Zygoptera) or in some cases in or on water or mud. Those species which deposit their eggs in water have a reduced ovipositor (*e.g. Libellulinae, Gomphinae*).

Little can be said of the economic importance of the Order as few precise observations have been made. It is evident that dragon-flies must destroy an enormous number of Diptera, both in larval and adult stages, and there can be no doubt but that we must regard them as being on the whole beneficent to mankind.

The only Malayan name that I can find for the dragonfly is "puting betiong" which was given me by Annandale as the Patani Malay name for dragonflies generally.[1]

The terms employed in referring to various parts of the body for descriptive purposes I hope will be sufficiently explained by the diagrams accompanying the text.

Geographical terms employed are as follows—

Neo-Malaya—Borneo, Sumatra and the Malay Peninsula.

Malaysia—The Archipelago including the Philippines and the Celebes as far E. as 125° E.

Sub-Order ZYGOPTERA.

Larva with slender, cylindrical body. Respiration usually effected by three caudal gills. Of these the median is developed from the appendix dorsalis, which apparently remains unmodified in the Libellaginae, the two lateral from the cerci. No specialized rectal branchial apparatus is known to occur. Gizzard with eight or sixteen radical tooth-bearing fields. No branch of radial trachea.

Adult, with dumb-bell shaped head. Synthorax with second lateral suture generally distinct. Abdomen long and cylindrical. Male with *paired lower* anal appendages derived from the cerci of the vestigial eleventh segment of the abdomen. Ovipositor of female complete. Fore and hind-wings closely similar in venation and outline. Discal cell present as a 'quadrangle.' Male usually holds the female prothorax with his claspers. The posterior margin of the female prothorax often specially modified. Flight generally rather fluttering and weaker than in the Anisoptera.

The classification of the Sub-Order is still in a nebulous state. Curiously enough twenty years ago or less one supposed that finality had been nearly attained. Now thanks largely to Tillyard's work everything is in a state of flux.

I adopt the expedient of grouping the genera into a series of subfamilies, which appear to me natural and of approximately equal value. I cannot group the subfamilies into larger divisions though I believe this will be possible some day. Probably the Lestinae are rather widely separated from the other subfamilies, and I think the Epallaginae may ultimately be regarded in the same family as the American Euthorinae, and perhaps the Libellaginae with the Calopteryginae.

I. Sub-family **Libellaginae.**

Larvae with short bodies and long legs. Antennae with moderately long pedicels. Mask with median lobe cleft. Caudal gills apparently not functional; the median one remains unmodified as an appendix dorsalis similar to that of the Anisoptera. The two lateral gills are triquetral as in the *Calopteryginae,* but are usually lost in preserved specimens. Gizzard with sixteen fields of a few small teeth each. Inhabit running streams.

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1) The Dayaks of Borneo use the word *"tau-ir."* J.C.M.

Adult with wings slightly petiolated. Six or more antenodal cross-nerves. Quadrangle long and narrow, with cross nerves. Pterostigma usually well-developed. Supplementary sectors present. Body colours not metallic. Clypeus developed to form a remarkable snout-like structure. Wings of males often richly coloured. Legs of males in many species have the anterior surface of the tibiae white or blue forming a conspicuous sexual ornament.

The subfamily is African and Oriental in distribution, a few species overflow into Papua.

The type genus *Libellago* is African. The others are all found in the Oriental Region especially in Malaya.

Key to Genera.

I Cu present, normal.
  a M 1 + 3 and M 4 leave the arculus separately
    a Abdomen scarcely longer than hind-wings or not so long *Rhinocypha*
    b Abdomen much longer than hind-wings *Rhinoneura.*
  b M 1 + 3 and M 4 leave arculus by a short common stalk *Micromerus*
II Cu 2 much reduced. Otherwise like *Micromerus* *Disparocypha*

Genus **Rhinocypha**.

One of the most characteristic and beautiful of Oriental genera. One or two species overflow into Papua whilst none are known from Ceylon. The richest development of species is found in the E. Himalayas and in Neo-Malaya.

Rhinoneura, a genus closely allied to *Rhinocypha*, is known only from a unique male from Kinabalu. It differs from *Rhinocypha* chiefly in having a long slender abdomen, whilst all the members of the latter genus have the abdomen shorter than the wings and somewhat flattened in cross-section.

So far as I know *Rhinocyphas* haunt quick-running streams in forest-clad country and locally individuals may be numerous. The male is said by Annandale (*R. fenestrella*) to dance before the female in the air displaying the white anterior surface of the tibiae. The wings of many species have hyaline fenestrae in the opaque area, which add greatly to the beauty of the insect.

The genus *Disparocypha* is also related to *Rhinocypha*, but shows a remarkable reduction in the venation, vein Cu 2 having been lost altogether, and Cu 1 being reduced to a mere vestige. This genus is known from the Celebes only. Its occurrence then serves I think to mark the truly Malayan character of the fauna of that island.

Group *karschi*

Contains a single primitive form with narrow wings and the proportions and appearance of a *Micromerus*. It has I believe actually been described by Martin as *Micromerus robropictus* (Bull. der. Mus. d'hist. nat. 1902 p. 508), but the venation is certainly that of a *Rhinocypha*.

The group is characterized as follows:—size small, wings very narrow, apex of hind-wing opaque, without metallic reflex or fenestrae, abdominal markings red.

The single species *R. karschi* Kruger, is recorded from Borneo Sumatra and the Malay Peninsula—a distribution unique for the genus.

Group *pagenstecheri*

An interesting group not recorded from the Peninsula hitherto, but represented in Borneo. It is characterized by the red or yellow markings on the abdomen, the narrow wings which are devoid of colouring, save that in the males of some species the apices of the wings may be narrowly limbate. To this group belong.

R. spinifer Martin (MSS.)	Borneo
R. moultoni Laidlaw,	Borneo

and species from Sumba, Lombok and islands of the E. part of the Archipelago.

Perhaps too '*Libellago*' *asiatica* Brauer from the Philippines should be referred here, and possibly *R. stygia* Forster from Mt. Kinabalu. But I suspect the latter is really *Micromerus hyalinus* Selys. It has the abdomen black and unmarked. *R. immaculata* from the Himalaya belongs to a different group altogether, and one that is not Malayan.

Group *heterostigma*

Males with fore-wing colourless and narrow, hind-wing largely opaque, and especially in *R. anisoptera* relatively broad. The opaque area has a single fenestra between the nodus and pterostigma, the fenestra is only relatively hyaline. Abdomen black. Group confined to Sumatra and Java. Species in Malaysia are—

R. heterostigma Ramb.	Java
R. anisoptera Selys	Sumatra and Java
R. selysi Kruger,	Sumatra.

Group *humeralis*

Males with opaque apical area on all four wings. Colour pattern on body blue or lilac. No fenestra but in some species the opaque area of the wing includes a definite space which shows strong metallic reflex. Females so far as known with uncoloured wings.

The wings are rather narrow.

No species known from the Peninsula. Distribution Borneo and some of the islands to the East of the Archipelago. Malayan species—

R. aurofulgens Martin (MSS.)	Borneo.
R. humeralis Selys	Borneo.
R. eximia Selys	Borneo.

Another Bornean species, *cucullata* Selys, may be referred to this group. It has a curious saddle-like projection on the dorsum of the second abdominal segment in the male, and the last two segments are lilac coloured dorsally.

This group would appear to be closely related to a more eastern series of species, ranging from the Philippines and Celebes to Papua and N. Australia; the females in some cases have the wings in part opaque, as well as the males. A characteristic species is *R. tincta* Selys from the Philippines.

Group *angusta*

This group has the most extensive range of any in the genus. It is represented in Peninsular India, the only example of the genus there occurring, in the Himalayas eastwards to Formosa, throughout Burma and the Indo-Chinese Peninsula to the Malay Peninsula, Sumatra, Java and Borneo. Apparently absent from the Philippines and from the Archipelago east of Java.

The males have a membranous area in front of the dorsum of the synthorax, triangular in shape and of a beautiful lilac colour. The 'mesothoracic triangle' is also present in the females, but in them is black. It is smaller than that found in the next group (*quadrimaculata*). The wings are rather narrow, the fore-wings have definite opaque or semi-opaque markings, and the hind-wings likewise opaque distally, carry iridescent fenestrae. Colour pattern on body blue or lilac (except in the Indian *bisignata* Selys, in which they are orange-red).

The females have uncoloured wings and the colour pattern of the abdomen is yellow. Malaysian species—

R. angusta Selys,	Sumatra.
R. fenestrata Burm,	Java.
R. biseriata Selys,	Borneo.
R. biforata biforata Selys,	Malay Peninsula.
R. perforata perforata Perch.	Malay Peninsula.
R. apicalis Kruger (? = *biforata*)	Sumatra.

Of these species, *angusta, fenestrata* and *biseriata* are closely allied to one another and to *perforata*, whilst *biforata* is also not distantly related. This latter is possibly the parent form from which the Indian *R. bisignata* has been derived. The other species of the group—the Burmese *R. iridea* Selys, seems to be in some respects intermediate between this and the *quadrimaculata* group.

Group *quadrimaculata.*

Males with relatively broad, very richly coloured wings. 'Mesothoracic triangle' longer than in the last group, reaching up to the level of the alar sinus. Hind-wings opaque distally from about the level of the nodus, with large clearly defined fenestrae. Fore-wings likewise opaque from about the same level, but with the anal margin hyaline. The group is mainly Himalayan with several 'species' or races; one of these, *fenestrella* Ramb., ranges through the Malay Peninsula. The group is thus restricted to the mainland, and would appear to have only recently extended its range southwards. Malayan species—

R. quadrimaculata fenestrella Ramb. Malay Peninsula.

Genus **Micromerus**.

The members of this genus are the smallest members of the family: they are also the smallest of the old Selysian sub-family, Calopteryginae, and perhaps too the smallest forms with coloured wings. The distribution of the genus is remarkable. One species, *lineatus* Burm., has a wide range over the greater part of the Oriental Region (though this species is probably to be sub-divided into an Eastern and a Western race). Ceylon has two peculiar species of its own, but the bulk of the species are found in Malaysia and as far East as the Celebes, the latter island having several fine distinctive species. It is a little remarkable that the genus has not been recorded from the Philippine Islands.

The species of *Micromerus* are not likely to be confused with those of any other genus; one *Rhinocypha* only, as already remarked, bears a strong general resemblance to *Micromerus;* otherwise their very small size, the rich yellows and reds of the abdomen contrasting with the velvety black ground colour, the beautiful iridescence even of the hyaline part of the wings, give these insects a distinction and delicacy which with their relative rarity, perhaps more apparent than real, makes them quite fascinating. Some of the species (*semiopacus* etc.) have the curious snout-like epistome tipped with metallic violet colouring. The fine Sumatran species *snellemanni* Selys, one of the largest forms of the genus has a 'fenestra' on each hind-wing and a brilliancy of metallic reflex of the opaque area which rivals that of the *Rhinocyphas.*

M. aurantiacus, the smallest species, has the abdomen 13 mm. long and the hind-wing 15 mm.

The species found in our area fall into at least two groups which are probably capable of further subdivision. The first of these is characterized by the absence of the pterostigma in the forewing of the male, and includes the typical species *lineatus,* which has apparently a very wide range. I have seen specimens of typical *lineatus* from Assam, Burma and the Malay Peninsula, whilst examples from Peninsular India and Ceylon seem to me to belong to a distinct race. *Lineatus* and certain allied forms have the apex of the fore-wing opaque, but the opacity does not reach the anal margin of the wing. The abdominal markings of *lineatus* are of a bright canary yellow colour in the male and in the adult occupy the dorsum of segments 1-5, the rest of the abdomen being velvety black. In teneral males yellow, paired markings, can be seen also on segments 6-8.

The closely allied species *aurantiacus* Selys, has the wings very similar to the last species. The markings on the abdomen are more extensive and in the adult male are of a brick red colour on the dorsum of each of the abdominal segments. *Sumatranus* Albanda, is perhaps a geographical race of *aurantiacus*.

Signatus Kruger I have not seen, it appears to be allied to *lineatus* (possibly a teneral form of that species?). The apex of the forewing is without an opaque mark resembling as Kruger has noted, in this respect young examples of *lineatus*.

Another species, *semiopacus* Selys, is readily distinguished from the fore-going by the fact that the apical marking of the fore-wing of the male extends transversely right across the wing, covering the apical quarter or thereabouts of the wing. An example of this species from Borneo has definite vestiges of a pterostigma on both fore-wings.

Key for males of *Micromerus* from the Malay Peninsula.

A. Pterostigma absent on fore-wing
  - *a* Opaque marking on fore-wing with its inner margin running transversely across the wing. Abdomen with red or yellow markings *M. semiopacus*
  - *b* Opaque marking on fore-wing with its inner margin oblique, not reaching to the anal margin of the wing
    - 1 Abdomen with all segments marked with brick red or orange on dorsum. Epistome not metallic *M. aurantiacus*
    - 2 Abdomen with segments 1-5 of abdomen marked with bright canary yellow. Epistome metallic *M. lineatus*
  - *c* Fore-wings without opaque markings, otherwise as in *lineatus* . *M. signatus*

B. Pterostigma present on all four wings
  - *a* Fore-wings without opaque markings. Colouring generally black, abdomen with metallic reflex *M. hyalinus*
  - *b* Fore-wings with opaque marking *M. stigmatezonis*

Malaysian species of the first group—

M. lineatus Burm,	Malay Peninsula, Java.
M. aurantiacus Selys,	Malay Peninsula, Borneo.
M. sumatranus Selys,	Sumatra.
M. signatus (?) Kruger	Penang, Java.
M. semiopacus Selys,	Sumatra, Borneo, Malay Peninsula.
M. snellemanni Selys,	Sumatra.

The second group, containing species in which the male has a pterostigma present on all four wings, includes only three species from our area (*M. robropictus* Martin being I believe a *Rhinocypha* and synonymous with *R. karschi* Kruger).

Of these, *hyalinus* Selys, has the wings uncoloured, and the male has the first three segments of the abdomen black with a metallic green reflex, the remaining segments black with a violet reflex, on the dorsum. The other two species have the apex of the fore-wing opaque, and the abdomen marked with red or yellow.

M. hyalinus Selys,	Borneo, Malay Peninsula
M. sticticus Selys,	Borneo.
M. stigmatezonis Selys,	Malay Peninsula.

The following names are synonyms.

M. affinis Laidlaw	=	*M. semiopacus* Selys.	Malay Peninsula.
M. martinae Karsch	=	*M. semiopacus* Selys.	Sumatra.
M. annandalei Laidlaw	=	*M. aurantiacus* Selys.	Malay Peninsula

II. Sub-family **Calopteryginae** (= *Agrioninae* pars Kirby).

Larva with slender body and very long legs. Antennae with long pedicle. Mask very deeply bifid. Anal gills long, bayonet-like. Adult with wings scarcely petiolated, numerous antenodal cross nerves. Quadrangle as long as medio-radian space, reticulated. Pterostigma normal, reduced or absent. Numerous supplementary sectors. Body colours metallic, wings of males often richly coloured with metallic reflex.

Neo-Malayan genera:—

A. Quadrangle rectangular
  1 A pterostigma present in both sexes (Calopterygini) *Echo* (sens. lat.)
  2 No pterostigma in male, a false pterostigma in female. Hind wing of male with brilliant metallic green colouring *Neurobasis*
  3 No pterostigma. Both fore and hind-wings of male opaque black with metallic reflex *Matronoides* (sens. lat.)
B. Quadrangle with its costal and anal margins slightly curved, its outer side longer than the inner (Vestalini) *Vestalis* (sens. lat.)

The Calopterygini are represented throughout the Holarctic Region by the type-genus *Calopteryx,* of which genus one or two species have made their way into the Oriental Region. Otherwise this section of the sub-family is almost entirely confined to the Tropics of the Old World, excluding Australia.

Genus **Echo**.

1. Pterostigma small, similar in both sexes — sub-gen. *Echo.*
2. Pterostigma in male long and narrow, in female short and square — sub-gen. *Echo.*

A Sumatran species *uniformis* Selys, which possibly occurs also in the Malay Peninsula, belongs apparently to the sub-genus *Echo* but differs from the type species *margarita* Selys, from Assam in having uncoloured wings.

Climacobasis has a single species *modesta* Laidlaw, (= *lugens* Laidlaw) from the Malay Peninsula. It is in appearance very similar to *uniformis,* and also to *Vestalis amœna* Selys, but can of course be readily separated by the difference shown by the pterostigma.

Neo-Malayan species

Echo uniformis Selys	Sumatra, ? Malay Peninsula
Climacobasis modesta Laidlaw	Malay Peninsula.

Genus **Neurobasis.**

The species *chinensis* (Linn.) is the commonest and most widely distributed of the larger Oriental Zygoptera. The brilliant green of the hind-wings of the male make it conspicuous and easy of identification as it hovers over running water, haunting for the most part rivers of moderate width. The female has the wings hyaline, tinged with yellow, and with curious white marks occupying the position of the pterostigmata. These are spoken of as 'false pterostigmata.' Races from the Celebes (*kaupi*), from the Philippines (*luzoncensis*), Papua and Australia (*australis*) are well characterized. Otherwise the species does not seem to me to have recognizable races throughout its area, though such have been described.

Genus **Matronoides.**

A single species *cyaneipennis* Forster, known to occur only on Kinabalu and on one or two other high mountains in Borneo. The male is very similar to the males of the Himalayan genus *Matrona,* but whereas in the latter genus the female has wings coloured as in the male, the female of *Matronoides* is very similar to that of *Neurobasis,* but does not possess a false pterostigma. This is the largest Malayan Zygopteron.

Neo-Malayan species

Matronoides cyaneipennis Forster	Borneo.

The section Vestalini of the subfamily has very numerous species, belonging to the genus *Hetaerina* in the warmer parts of the Americas, and a few belonging to the type genus *Vestalis*, in Tropical Asia, ranging from Ceylon and India to the Philippine Islands.

Genus **Vestalis.**

1. Two complete rows of cells between Cu^1 and Cu^2, wings of male opaque — subgen. *Vestalis*
2. Never two complete rows of cells between Cu^1 and Cu^2, wings of male hyaline — subgen. *Vestinus*

The restricted genus *Vestalis* occurs in the Philippine Islands where it is represented by the magnificent *V. melania* Selys, one of the most brilliant of all insects. A second species *V. luctuosa* Burm., occurs in Java, and a third closely related in Sumatra. The third species *V. lugens* Alb., is recorded on the authority of Dr. Forster from the Malay Peninsula, a single specimen having been taken by Grubauer on the Perak-Pahang boundary at Kampong Jor at an elevation of 2,000 ft. (?)

It is to be hoped that this record will be confirmed.

Malaysian species—

V. luctuosa Burm.	Java.
V. lugens Alb.	Sumatra, Malay Peninsula.

The sub-genus *Vestinus* covers a wider area, and has more representatives. It ranges from Ceylon and Peninsular India to Java and Borneo. The Indian form *V. gracilis* Selys, apparently divides into local races, of which *apicalis* Kirby from S. India and Ceylon is the most marked. The common Malayan species *V. amoena* is closely allied. The geographical boundary between the two species has not been determined, but would probably serve well to delimit the Malayan from the Burmese faunal province.

A rare species from Borneo, *V. beryllae* Laidlaw, is remarkable for the great length of the abdomen which may attain a length of 70 mm. as against 40 mm. for the hind-wing. This or a very similar species occurs also in Java.

Malaysian species—

V. amoena Selys	Sumatra, Borneo, Malay Peninsula
V. beryllae Laidlaw	Borneo, Java (?)

EXPLANATION OF FIGURES.

Fig. 1. **Tracheation of hind-wing of larva of Azuma sp.** (*Corduliinae, Anisoptera*).

C. Anterior margin of wing; note that there is no costal trachea.

Sc. Subcostal trachea.

M + R. Trunks of median and trachea running together.

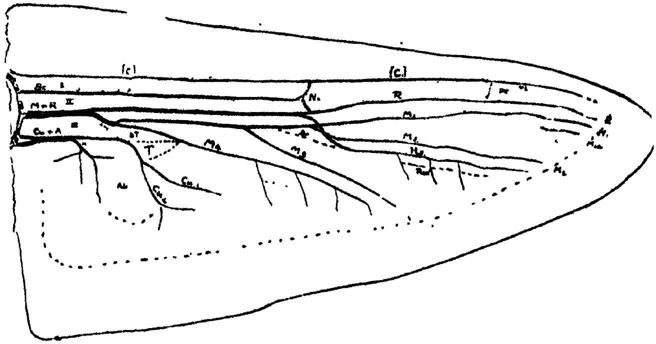
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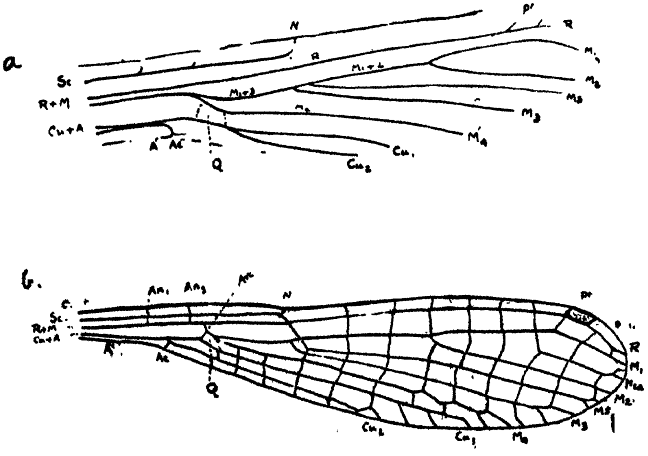
Fig. 1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R+M
Cu+A
An₁
An₂
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pt
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M₂
M₃
M₄
Cu₁
Cu₂
Ac
Q

Fig. 2

Cu + A. Trunks of cubital and anal trachea running together.

R. Distal part of radial trachea. Rs 'Radial sector.'

M^1 M^2 M^3 M^4 Branches of median trachea.

Cu^1 Cu^2 Branches of Cubital trachea.

N. Nodus. Pt. Pterostigma. T. Triangle. ST Supra triangle.

Arc. Arculus. Ac Anal crossing. AL. Anal loop.

Br. Bridge-vein. Rspl. Radial supplement.

Note. Important *veins* not pre-formed as tracheae are indicated by dotted lines. The outline of the whole figure marks the outline of the larval wing case, the anterior margin of the wing is shown at C and the posterior margin is indicated by a dotted line.

I. Costal space II. Subcostal space III. Median space.

This figure may be taken as representing the tracheation of a typical anisopterous wing. Note especially the way in which Rs crosses M^1 and M^2 where these fork from each other, and how the bridge-vein (Br) carries it back on to the trunk of the media.

Fig. 2. *a.* **Tracheation of hind-wing of Agrionemis sp. from last larval instar (semi-diagrammatic).**

b. **Venation of hind-wing of Agriocnemis sp.**

Q. quadrangle. MS. 'Zygopterous sector'. An^1 An^2 & A recurrent branch of anal vein. First and second antenodal cross nerves. Pn. Post-nodal cross-nerve. Other lettering as in Figure I.

Note that MS has same relationship to the other veins as the bridge-vein Br of the Anisoptera plus that part of Rs distal to it.

◆

Mohamedan Calendar.

By Captain Haji Mohamed Sayid, S.M.J., Johore.

It is well known that among the Malay and other Mohamedan communities, however accurate a calculation may be in calendar or almanac, the appearance of the new moon on the horizon at sunset in a country where such a thing is possible, is essential as a basis for calculating the beginning of the month in connection with certain religious rites and duties.

The new moon for the month of Ramathan is keenly watched for by the Mohamedan community, in order to commence the observation of their Fast. The month of Sha'aban ordinarily is only 29 days in length, but if the new moon does not appear at sunset on the 29th, an extra day is added, making it 30 days, after which the fasting month will begin. This practice is observed in accordance with a ruling of the Prophet Mohamed.

The sudden appearance of the new moon on the 29th day of the fasting month of *Ramathan* is also religiously watched for as it ends the fast, and the following day is observed as a Festival without waiting for the completion of the 30th day of fasting.

In spite of the above circumstances, a proper and accurate almanac or calendar published by authority cannot be varied, as there is no calculation in almanac or calendar that shows the month of *Sha'aban* having more than 29 days.

The Mohamedan months are alternately 30 and 29 days in length except in leap years when an additional day is added to the end of the last month of the year (*Dzu'l-hijjah*) making it 30 days. Thus the ordinary year consists of 354 days. The leap years occur three times in every eight years.

There are several methods of ascertaining the first day of a month in any given year, and below is given one of the simplest.

Comparison has been made with the seventy five years' calendar compiled by Messrs Gifford & Symons published in 1897 and the twenty five years' calendar issued by Mr. H. Abdeen, 1922, also with the Annual Directory published by Messrs Fraser & Neave, Limited, and it proves to have very few variations, and those apparently caused by differently fixed Leap Years. However, the perpetual calendar given hereunder will show the regular recurrence of the leap years.

Mohamedan Perpetual Calendar.

The Mohamedan years, months and days of the week may be known by certain figures or letters shown hereunder in their respective tables:—

Table A.

YEARS.

Figure	Letters	Years	Years	Years	Years	Remarks.
1	A	—	1345	1353	1361	To arrange the years in the order of their respective figures or letters, it is necessary simply to find out what year will give a remainder of 1 after being divided by 8. When such a date has been found it is placed against fig. 1 letter A in the Table, and the succeeding years are written in order down the column. The correct letters and figures will then have been assigned to the dates.
5	H	—	1346	1354	1362	
3	J	—	1347	1355	1363	
7	Z	—	1348	1356	1364	
4	D	1341	1349	1357	1365	
2	B	1342	1350	1358	etc.	
6	W	1343	1351	1359	etc.	
3	J	1344	1352	1360	etc.	

Table B.

MONTHS.

Figures	Letters	Months	Remarks.
1	A	Muharram (1st month)	30 days.
3	J	Safar (2nd month)	29 "
4	D	Rabiʻu'l-awal (3rd month)	30 "
6	W	Rabiʻu'l-akhir (4th month)	29 "
7	Z	Jumada'l-awal (5th month)	30 "
2	B	Jumada'l-akhir (6th month)	29 "
3	J	Rajab (7th month)	30 "
5	H	Shaʻaban (8th month)	29 "
6	W	Ramathan (9th month)	30 "
1	A	Shawal (10th month)	29 "
2	B	Dzu'l-kaidah (11th month)	30 "
4	D	Dzu'l-hijjah (12th month)	29 days in ordinary years. 30 days in leap years.

Table C.

DAYS.

Figures		Days	Remarks.
-	8	Sunday	It is to be noted that the 8th, 15th, 22nd and 29th of any month will always be on the same day of the week as that on which the first of the month falls.
2	9	Monday	
3	10	Tuesday	
4	11	Wednesday	
5	12	Thursday	
6	13	Friday	
7	14	Saturday	

Application.

The following is the method for finding out on which day of the week the first of any particular month in a given year falls:—

Take the figure denoting the year in Table A and the figure denoting the month in Table B and add them together. The total gives the figure for the day of the week on which the month commences as shown in Table C. In other words:—figure denoting year in Table A plus figure for month in Table B is equal to figure for day in Table C. For example:—To find the day of the week on which 1st of Dzu'l-kaidah falls in 1341:—

Figure for year 1341 is	4
„ „ Dzu'l-kaidah	2
Total ..	6

and 6 in Table C indicates Friday. Therefore 1st of Dzu'l-kaidah 1341 will be Friday.

The following is a Mohamedan 14th *Kurun* (century) calendar showing the 1st day of every year and the recurrence of every leap year. It can be extended at either end, that is to say, prior to the year 1300 or after the year 1400.

The 14th Kurun Calendar.

ANNO HIJRAH 1300-1400.

1 A	Leap Years. 5 H	3 J	7 Z	Leap Years. 4 D	2 B	6 W	Leap Years. 3 J
Monday. ×	Friday.	Wednesday.	Sunday.	Thursday.	Tuesday.	Saturday.	Wednesday.
*	Ending 30 (Tuesday.)			Ending 30 (Monday.)			Ending 30 (Sunday.)
..	..	..	1300	1301	1302	1303	1304
1305	1306	1307	1308	1309	1310	1311	1312
1313	1314	1315	1316	1317	1318	1319	1320
1321	1322	1323	1324	1325	1326	1327	1328
1329	1330	1331	1332	1333	1334	1325	1336
1337	1338	1339	1340	1341	1342	1343	1344
1345	1346	1347	1348	1349	1350	1351	1352
1353	1354	1355	1356	1357	1358	1359	1360
1361	1362	1363	1364	1365	1366	1367	1368
1369	1370	1371	1372	1373	1374	1375	1376
1377	1378	1379	1380	1381	1382	1383	1384
1385	1386	1387	1388	1389	1390	1391	1392
1393	1394	1395	1396	1397	1398	1399	1400

The source of the above tables is Arabic. They are supposed to be known as *Takwim Khamsiah* and were done into Malay by an unknown translator at an unknown date. They were found by the writer among some old manuscripts. It appears that the title *Khamsiah,* which means five, was derived from the system of reckoning by fives, in order to know the first day of the same month of the coming ordinary year (not leap year). For example. To find out the 1st day of the month of Muharram, 1343, the following calculation is made. As the first day of the month of Muharram, 1342, is Tuesday, the reckoning is commenced by counting Tuesday as (1), Wednesday as (2), Thursday as (3), Friday as (4) and Saturday as (5). Thus Saturday will be the first day of the month of Muharram, 1343.

In case of a Leap Year, say, in 1341, an extra day is added. The 1st day of Muharram, 1341, for example, is Thursday. The reckoning therefore will be as follows:—Thursday (1), Friday (2), Saturday (3), Sunday (4), Monday (5) and Tuesday (6). So the 1st day of Muharram 1342 will be a Tuesday.

× **Denotes the first day of the year.**

* **Denotes the last day of the leap year.**

The Geology of the Langkawi Islands.

With a geological sketch map.

By J. B. Scrivenor,
Geologist, Federated Malay States,
and E. S. Willbourn,
Assistant Geologist, Federated Malay States.

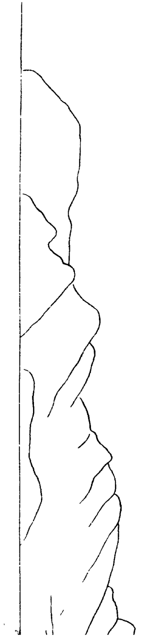
INTRODUCTION.

This paper was written by Mr. Scrivenor as a result of two visits to the Langkawi Islands, the first, in October 1919, lasting about one week, and the second lasting between two and three weeks in September 1920. Additional information gained by Mr. Willbourn during parts of November and December 1922 has since been added.

The Langkawi Islands are the southern members of a group off the coast of Perlis and Setul, the other islands being Terutau and the Butang Islands, but, as the political boundary between Siamese territory and the sphere of British influence separates Terutau and the Butang Islands from the Langkawis, they are generally regarded as distinct. They lie between 6° 10′ N. Lat. and cover about 200 square miles of the sea in the extreme north of the Straits of Malacca. Being only a little south of the parallel of the southern point of Great Nicobar, and a little north of the parallel of the extreme north of Sumatra, the western side of the group is exposed to the swell of the Indian Ocean, but among the islands themselves are calm, deep harbourages and large, sheltered tracts of water where the inhabitants can carry on fishing without hindrance.

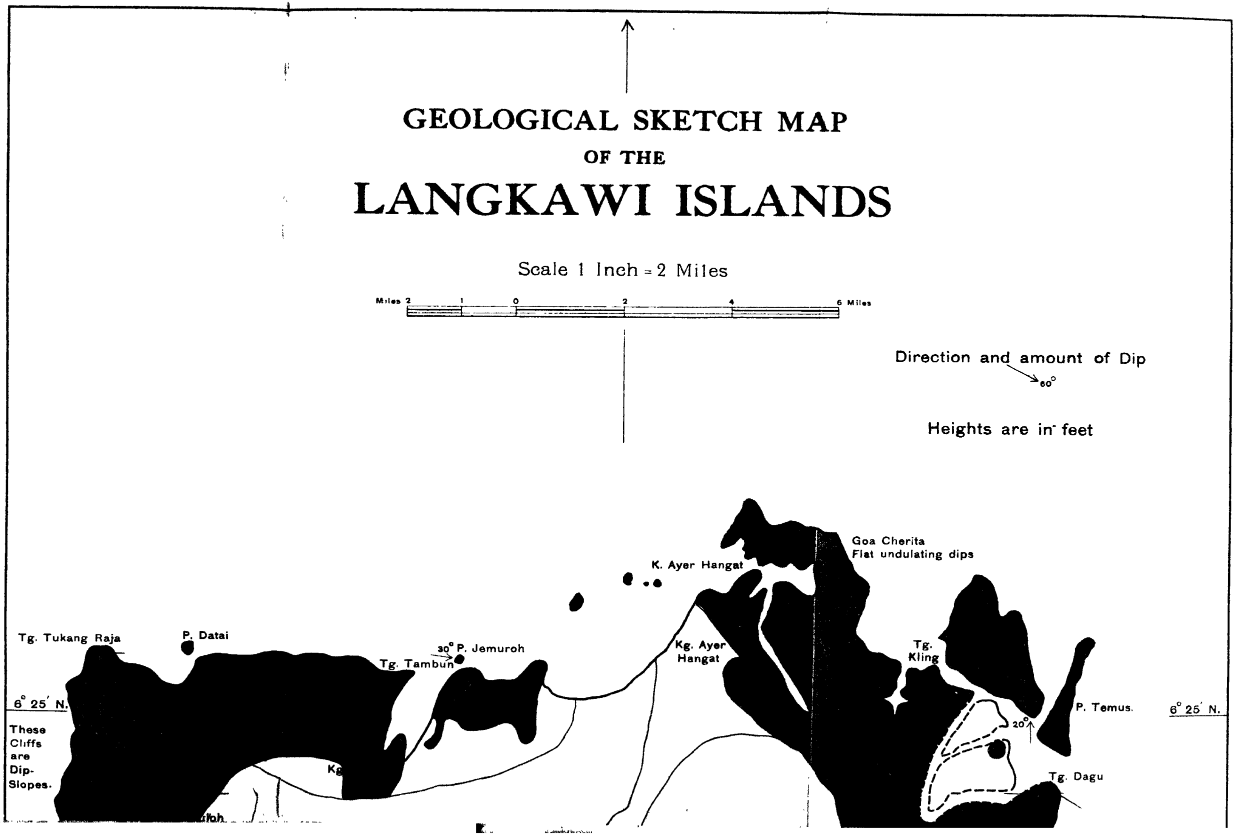
The chief island of the group is Pulau Langkawi, with an area of about 140 square miles. Next in size is Pulau Dayang Bunting, 9¼ miles long, with Tubah on the east, separated by a strait so narrow that it appears like a river. West of Dayang Bunting are Pulau Lada, Pulau Bras Basah, and many islets. On the south-west of Langkawi are Rebak and Tepur; on the east Pulau Tanjong Dindang and Pulau Timus, while on the south-east is Pulau Dindang, also known as Pulau Timun, separated from the main island by the narrow and deep Selat Panchor. To the east of the north ends of Dayang Bunting and Tubah are ten small islands: there are more to the north of Langkawi, the total number of islands and islets being between sixty and seventy.

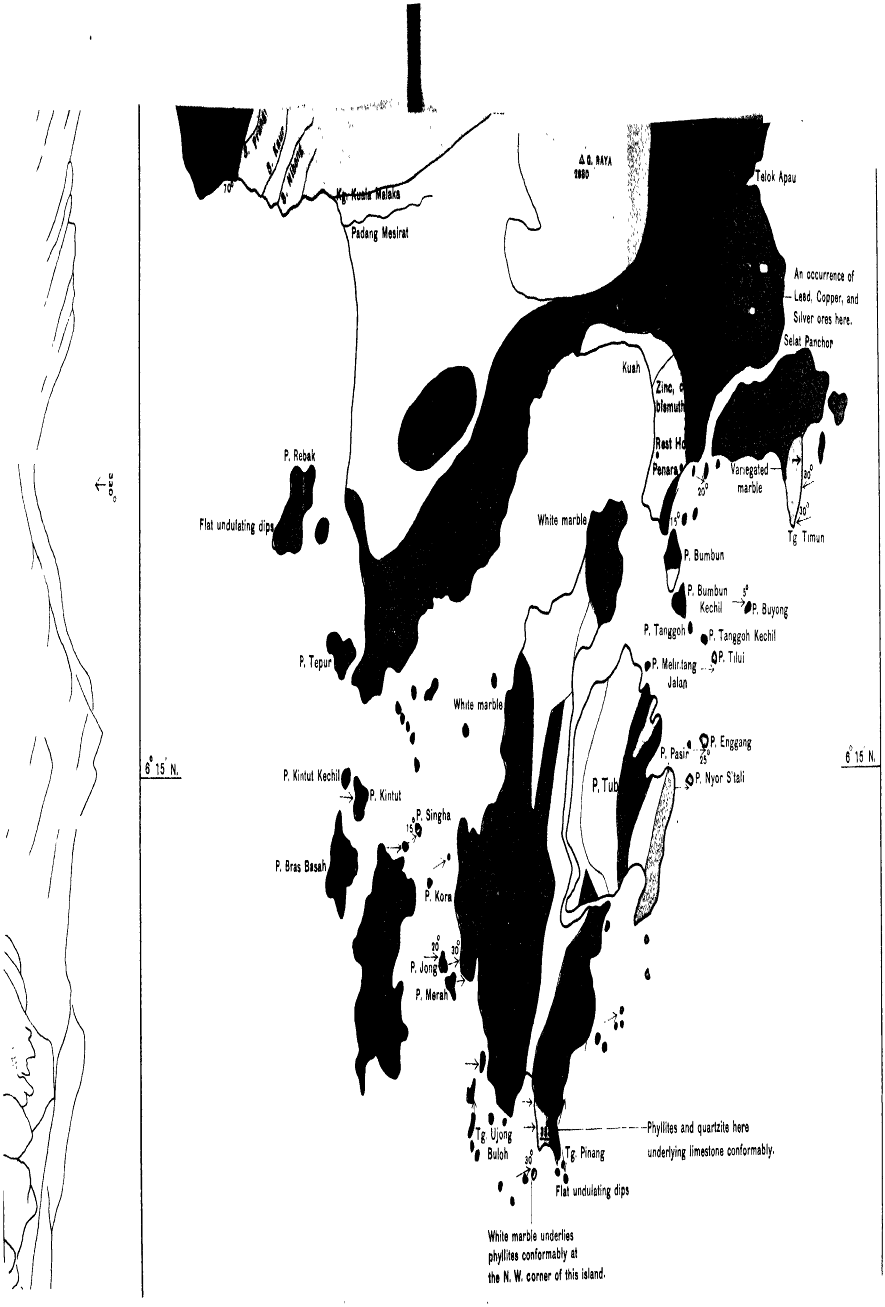
The inhabitants of the Langkawi Islands are said to number about 8000. The largest settlements are in the padi-fields of Padang Mesirat and Ayer Hangat, and at Kuah on Pulau Langkawi; but along the shores of the other islands there are many small settlements of fishermen with coconut-groves and patches of other



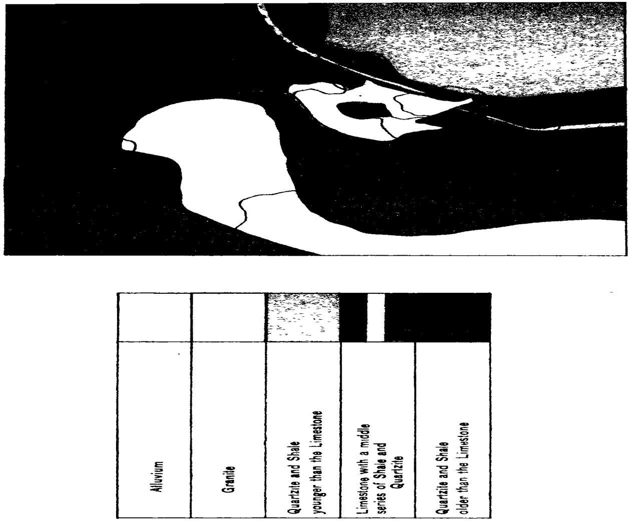
GEOLOGICAL SKETCH MAP
OF THE
LANGKAWI ISLANDS

Scale 1 Inch = 2 Miles




70°
Kg. Kuala Malaka
Padang Mesirat
Δ G. RAYA
2880
Telok Apau
An occurrence of
Lead, Copper, and
Silver ores here.
Selat Panchor
Kuah
Zinc, c
bismuth
Rest Ho
Penara
P. Rebak
Flat undulating dips
330°
Variegated
marble
20°
15°
30°
30°
Tg Timun
White marble
P. Bumbun
P. Bumbun
Kechil
5°
P. Buyong
P. Tanggoh
P. Tanggoh Kechil
P. Tilui
P. Melintang
Jalan
P. Tepur
White marble
P. Pasir
P. Enggang
25°
P. Nyor S'tali
P. Tub
6° 15' N.
6° 15' N.
P. Kintut Kechil
P. Kintut
P. Singha
15°
P. Bras Basah
P. Kora
20°
30°
P. Jong
P. Merah
Tg. Ujong
Buloh
Tg. Pinang
30°
Flat undulating dips
Phyllites and quartzite here
underlying limestone conformably.
White marble underlies
phyllites conformably at
the N. W. corner of this island.

Printed by F. M. S. Surveys No. 246 1923


Alluvium
Granite
Quartzite and Shale younger than the Limestone
Limestone with a middle series of Shale and Quartzite
Quartzite and Shale older than the Limestone

Suggested outcrops at the level of the sea - bottom

Sketch of Terutau
From
Pulau Jemuroh,
Langkawi

vegetable produce. Rubber has been planted near Kuah, and between Kuah and Ayer Hangat there is a small teak plantation. Parts of the islands are very rugged and useless for agriculture, and this is especially the case where limestone outcrops, as on the east of Langkawi and over the greater part of Dayang Bunting.

The highest point on the islands is Gunong Raya, on Langkawi, a granite peak of 2880 feet overlooking the small town of Kuah, and the next highest hills are to be found in the quartzite range in the north-west corner of the same island.

The widespread outcrops of limestone are responsible for much of the beautiful coast-scenery of the Langkawis, where one may sail in a native boat between high limestone cliffs rising sheer from the sea, or along a jungle-clad shore crowned by castellated masses of marble. The finest scenery, however, is not in limestone country, but in the quartzite hills of the north-west, where tremendous cliffs, culminating in a serrated ridge with peaks over 2000 feet high, tower above the granite of the Telaga Tujoh waterfall. Behind the ridge is a triangle of quartzite country, broken by cliffs, sprayed by torrents, and plunging at a steep angle into the sea on either side of Tanjong Tukang Raja, that is unsurpassed by anything in the Malay Peninsula.

Although the Langkawi Islands are covered with dense jungle, the coast line is so extensive, o varied in direction, and so rocky, that the broad outline of the geological structure is not hard to determine. It is an instance of granite intruded into older rocks, the dips observable on the islands and islets enabling one to feel fairly sure what the distribution of the granite and the other rocks is at the level of the sea-bottom. In a small plan accompanying the geological sketch-map it is suggested what these outcrops at the level of the sea-bottom are: the visible outcrops above sea-level are but portions of these outcrops. The centre and middle-west parts of Langkawi consist of granite, and it appears from the dips of the tilted quartzites and shales of P. Rebak, Lada, &c., that, under the sea, the granite turns south and to the west of the smaller islands just mentioned. Again, there is granite south of Kuah, in P. Dayang Bunting, Tubah, and Bumbun. This appears to be a mass isolated from the granite of G. Raya on the surface, and it also appears to enclose a mass of limestone, which has been converted to finely crystalline marble, at the north-east end of Dayang Bunting. It is by no means certain that this granite extends over the sea-bottom as indicated, but the outline given is the best explanation of the facts.

STRATIGRAPHICAL SEQUENCE.

The rocks into which the granite has been intruded are:—

A. Youngest: quartzite and shale.

B. Limestone with a middle series, 700 feet to 1200 feet thick, of shale with a little quartzite.

C. Oldest: Quartzite and shale with a few thin beds of siliceous limestone.

The limestone of group B is very clearly distinguished from the quartzite and shale of A and C, but no unconformity has been noted between the three groups, that is to say there is no evidence that when C had been deposited in shallow water the rocks formed a land surface on which the limestone was deposited later after submergence. B is conformable to C, and some evidence has been seen that A is conformable to B. The three groups form a series beginning and ending with shallow water sedimentation, with a period in the middle during which deep water conditions prevailed for all but a short time.

C. QUARTZITE AND SHALE OLDER THAN THE LIMESTONE.

To begin with the oldest group, the quartzites and shales below the limestone are found in the north-west of Pulau Langkawi, along the south-western shore of the same island and along the eastern limit of the granite of Gunong Raya. They also form the islands Rebak, Tepur, Bras Basah, Lada, and numerous islets in the vicinity of Lada. On Lada thin bands of impure limestone were found interbedded with the quartzite and shale, while at the north-east corner are two pinnacles of limestone. The e two pinnacles together with another mass of limestone near by, on Pulau Singha, overlie the quartzites and shales conformably, the dip being 20° in direction E.N.E. The lowest beds of the shallow water group exposed on Pulau Lada are quartzite with a little shale, and the shale becomes more abundant as one goes nearer to the limestone. No recognisable fossils were seen, but some obscure markings may be casts of worm-burrows. All the quartzite examined contains calcite. Some thin beds of quartzite coarser in grain than the majority were found. A specimen collected has the following composition:—

Pyrite, calcite, tourmaline, zircon and mica about	1%
Felspar (orthoclase, microcline and perhaps albite) about	3%
Quartz and undetermined mineral matter about	96%

The felspar is remarkable in that it is not clouded by alteration products. Other specimens of quartzite were found to contain this fresh felspar, and its presence suggests that the sand forming the rock was derived from granite in a cool climate.

In the north of P. Langkawi, near P. Jemuroh, there are some fine-grained siliceous strata interbedded with limestone which mark the passage from shallow to deep-sea conditions. They look like chert and fine volcanic ash, and have alteration-products such as mica. Microscopic examination, however, shows that they are more probably the result of fine sediment reaching the area where the limestone was forming.

Specimens of quartzite and shale near the granite show the usual effects of alteration.

The thickness of group C cannot be measured exactly owing to variable dips and uncertainty as to the position of the granite west of P. Lada, but it is probably about 5000 ft.

B. THE LIMESTONE.

The same figure, 5000 ft., is probably not very far out for the thickness of the limestone of the Langkawis, but in this case also variable dips interfere with measurement.

The best localities for seeing the limestone least affected by the granite are certain islets such as Jong and Kora, and the north-east coast of Langkawi. On the west of Dayang Bunting there is a small fresh-water lake, measuring about 600 by 300 yards, near the end of a long inlet of the sea. The limestone on the beach in the inlet is pale grey in colour but it shows no organisms. The patch of limestone at the north-east end of Lada contains traces of fossils. In Newbolds "British Settlements in Malacca," 1839 Vol. 1. pp. 413, 414 "Pulo Ledah" is evidently this P. Lada, and Dr. Bland is stated to have observed fossil *nautili* and other fossils also. The traces found in 1920 did not resemble *nautili*, however, and judging from fossils found on Kora it is probable that cross sections of a univalve shell (gasteropod) with broad and flattened whorls gave rise to the statement. On Kora this shell is fairly common, as also are bryozoan remains. On P. Singha crinoid stem occur; but although the limestone is almost certainly Carboniferous, judging from the age of limestone on the mainland not very far removed, and although the fossils found do not afford evidence against this view, there seems little prospect of obtaining a large fauna from these rocks. Anyone having time to spare might find better-preserved and more varied specimens on the east coast of Langkawi, though a search at Goa Cherita, and on Pulau Timun was fruitles .

Near the granite the limestone has been greatly altered. The extreme north-east point of Dayang Bunting is formed of a beautiful saccharoid, white marble which extends some way along the north coast, but, approaching the granite contact in the Tubah Straits, it is replaced by grey limestone with secondary minerals such as tremolite. On Bumbun Kechil there are bands about 4 inches thick in the limestone which are composed largely of monoclinic pyroxene, wollastonite, and garnet, formed as a consequence of the granite-intrusion. In Penarak Bay, north-east of Bumbun, tremolite and mica occur in the limestone. On Tubah, near the granite junction, small irregular bodies of secondary minerals were found in fissures. On Bumbun Kechil one can see cliff-sections beginning with the highly altered rock with secondary minerals, gradually passing into slightly altered beds with white markings that may be the remains of organisms.

In some parts of the Langkawis bedding in the limestone is very clear. This is particularly the case on the islet Kora, which is also strongly undercut by the warm sea-water.

On Pulau Lada, Pulau Singha, and near Tanjong Pinang, lenticular bodies or sheets of very pale-coloured siliceous rock containing calcite occur in the limestone, and on P. Kora a finer grained darker siliceous rock was examined. No organisms have been found in them. The bodies are intercalated between bedding planes, and only occasionally do they cut across from one bedding plane to another. In most cases, they occur in limestone which is seen to be immediately overlying shale and quartzite, and there are no such siliceous sheets in limestone more than 100 feet above the shallow water beds, except perhaps on Pulau Kora. In one case, near the phyllites of Tanjong Pinang, the bodies were seen in limestone underlying the shallow water beds. It seems to be probable that the silica for their formation was supplied by waters, charged with silica, coming from the beds of quartzite and shales. The resemblance of these siliceous sheets and nodules to the flints in the Chalk of Europe is very striking.

A series of phyllites and quartzites, with an approximate thickness of 700 to 1200 feet, occurs near Tanjong Pinang on P. Dayang Bunting and on a small island near there. It is clearly seen to be underlain and overlain by limestone and to be conformable with it. The shale on P. Tubah near P. Melentang Jalan is thought to be part of this same series, and, on the strength of these occurrences, a continuous band of the series has been inserted in the plan showing the outcrops at the level of the sea-bottom, though it should be noted that the rocks have not yet been discovered on Pulau Timun.

A. QUARTZITE AND SHALE YOUNGER THAN THE LIMESTONE.

The quartzite and shale of group A are confined to a few small islands on the east and south of Tubah, to a narrow strip of Tubah itself, and to the south promontory on Pulau Timun. They are clearly exposed on P. Tilui, P. Enggang, and P. Nyor S'tali. The dips of these beds and of the underlying limestone point to a conformable junction, and it is likely that the interbedded limestones and arenaceous beds on Tubah and Tilui represent passage-beds from the limestone to group A.

A specimen of typical quartzite from Tilui shows much felspar, some being plagioclase. All the felspar is slightly decomposed.

A specimen of hard shale from the same island contains minute prisms of tourmaline and flakes of biotite, showing the effect of the granite nearby, but generally the shales have a silky surface and might almost be called phyllites. There are very good exposures of these rocks on P. Tilui and Enggang. There are many veins of quartz in the quartzite.

On the south coast of Tubah and on the north-west coast of P. Tilui, bands of limestone were found interbedded with the quartzites and phyllites. These are the lowest beds of the quartzite and shale series that are exposed on these two islands, and calcite has not been detected in the upper members of this group.

THE GRANITE.

The granite is well exposed on the beach below the Resthouse, on Bumbun, Tubah, the north coast of Dayang Bunting, the coast of Langkawi between Sungei Prangi and Kampong Kuala Malaka, and at the waterfall, Telaga Tujoh. The granite generally contains large porphyritic crystals of felspar, thus resembling the typical porphyritic granite of the Peninsula, and it also contains much tourmaline. This mineral often occurs in veins, but also occurs as small irregular aggregates. On Tubah, close to P. Melentang Jalan, tourmaline occurs as small circular aggregates with a white border. On Langkawi, between S. Prangi and Kampong Kuala Malaka the granite is mostly porphyritic and has many aplite veins: tourmaline is abundant: schorl-rock and pegmatite occur. On the Telaga Tujoh fall the granite is porphyritic, with large basic patches, and veins of aplite.

No hornblende-granite has been found in the Langkawis.

On the east of Gunong Raya greisen was found as a boulder.

Where granite occurs on the coast there is generally a quantity of black sand on the beach. Large deposits were seen near S. Nibong, west of Kampong Kuala Malaka: a Malay assistant reported large quantities near Ayer Hangat. A number of specimens of these black sands were examined, as they should reveal any valuable minerals such as tin-ore or monazite, if they occur in the granite whence the sand was derived. The results were as follows:—

		Heavier than quartz.	
		NON-MAGNETIC.	MAGNETIC.
a.	Coast near Ayer Hangat	nearly all zircon.	Tourmaline and ilmenite.
b.	coast near Ayer Hangat	” ”	” ”
c.	S. Nibong	Zircon; muscovite; brookite; rutile.	Tourmaline and ilmenite,
d.	Near S. Nibong	Zircon.	Tourmaline and ilmenite and a little garnet.

The minerals heavier than quartz in sands from inland between Padang Mesirat and Ayer Hangat were also found to be almost entirely zircon, ilmenite, and tourmaline.

On the east coast of Tubah, close to the granite junction with the limestone, a concentrate was obtained that is of some interest. The non-magnetic portion consists of:—

Scheelite, spinel, rutile, pale coloured tourmaline, and zircon. The magnetic portion consists of:— ....

Tourmaline, ilmenite, and garnet.

This is the only concentrate in which a mineral which might be of economic value was found, but the amount of the scheelite is very small. If tin-ore occurs anywhere along the coast with the abundant tourmaline, it should be easily detected in these dark, naturally formed concentrates. In the Dindings tin-ore is found on a sea-beach under such circumstances, and the failure to find it in the Langkawis must, it is feared, mean that there is none in the granite in the vicinity of the dark sands.

When the granite was intruded into the older rocks the latter were folded. The form of the folds is now indicated by the dips observable on the surface. For the most part they are not very steep until one approaches the margin: then, not only do the dips become steeper, but sharp local folds occur, for instance on Bumbun Kechil and P. Tanggoh. On Tanggoh there are recumbent folds. Steep dips and sharp folds are of common occurrence near an intrusive mass, however, and there are only two localities where it appears likely that anything extraordinary took place during the earth movements contemporaneous with the intrusion of the granite.

One of these is the country to the north-east of Kampong Kobang Badak, where there is limestone and some shale and quartzite (on Pulau Jemuroh and on the mainland) dipping towards the granite instead of away from it. The big inlet of the sea south of Tanjong Tembun may be on the course of a fault which might explain the variations in dip, but there is no definite evidence of any such fault. The dips show, however, that this is not an area of normal upheaval, with the beds sloping away from the intrusive granite.

The other locality is the north-east portion of Dayang Bunting, where a mass of highly crystalline limestone is believed to be surrounded by granite. The crystalline nature of the rock and the form of the present outcrop suggest that it is the remains of a mass that sank into the viscous mass of unsolidified granite.

PROSPECTS OF MINERAL DEVELOPMENT.

The only mineral known to have been worked in the past on the Langkawis is galena (lead sulphide), found on the east side of P. Langkawi. The prospects of finding tin-ore do not seem to be very bright, judging by the concentrates described above. Recent prospecting at Kampong Kobang Badak is said to have given negative results, and there are no reports among the inhabitants of tin-ore having ever been found, unless one admits a vague rumour that someone once found something heavy somewhere on Gunong Raya. Black manganese oxide occurs in the quartzite at Tanjong Tembun, near P. Jemuroh, and is reported by Malays to occur near P. Datai also. Enquiries have been made about this ore, but there is no very hopeful prospect of obtaining it cheaply, even if it occurs in quantity, on account of the hard nature of the enclosing rock. At T. Tembun the oxide occurs in veins with quartz. The direction and size of the deposit can only be determined by opening it up. A little manganese oxide occurs on Tilui.

A bismuth and copper mine was started on Langkawi Island in 1922, but at the end of the year no definite idea of the extent of the deposit had been gained. It is a contact metamorphic deposit, near a granite limestone contact about 1½ miles from Kuah.

An ore body of unproved dimensions, and apparently quite irregular in shape, occurs in a hard rock composed largely of wollastonite and green garnet, with smaller quantities of another pyroxene, and calcite. The commonest ore mineral is sphalerite (zinc sulphide), next is bornite, and the amount of bismuth, which occurs as mixed bismuth copper sulphide, is comparatively small.

About one hundred yards from this deposit sphalerite with small quantities of copper pyrites, and a trace of the bismuth mineral, were found in a pyroxene-fluorite-green garnet rock.

So far, the evidence does not indicate that the deposit occurs as a lode with strongly marked walls. There is evidence of faulting, but it appears that the faults were subsequent to the ore deposition.

The occurrence of sphalerite and the bismuth mineral in two shafts some distance apart indicates that mineralisation may have taken place over an area of considerable size, but it should be noted that the ore minerals in the second shaft have been found only in small quantity.

The scheelite in the concentrate from Tubah suggests possibilities of payable tungsten-ores, and it would be advisable, if a considerable rise in the present low price of tungsten takes place, to bore the alluvium of the strait between Tubah and Dayang Bunting, and a small piece of flat land on Tubah opposite P. Melentang in this connection. It must be added, however, that the amount of scheelite found was very small.

One asset of the Langkawis is the beautiful white saccharoid marble in the north-east of Dayang Bunting. The grain of this marble and its colour make it equal to the best statuary marble, and it would be possible to ship the stone direct from a quarry by building a pier over the shallows bordering the cliff. It would be difficult to find a more favourable place for quarrying.

Variegated marble of a pleasing pinkish colour streaked irregularly with green and dark lines, was found on Pulau Timun, on the west side of the south-east promontory, at the contact with quartzites and shales, and a blue crystalline limestone, which when polished affords a black marble, is common within a few hundred yards of the same place.

The enormous quantity of limestone in the islands and the possibilities of water-power on Gunong Raya and in the north-west corner of P. Langkawi, combined with the facilities for shipping direct from a factory, make cement and carbide industries possible. Quarrying granite for building purposes is also a possibility. The southern end of P. Bumbun and the opposite shore of Tubah would be suitable for this work.

CORRELATION OF THE ROCKS OF THE LANGKAWI ISLANDS WITH THOSE OF NEIGHBOURING COUNTRIES.

In the absence of better collections of fossils this is a subject which can only be touched on briefly. There can be little or no doubt that the limestone is part of the Carboniferous limestone formation that is found in Sumatra, the Malay Peninsula, Indo-China, and Burma.

The shale and quartzite underlying the limestone conformably may be the equivalent of the sandy lower beds of the middle Carboniferous of Eastern Yunnan, where this period began with shallow-water conditions. There is no evidence that they are older than Carboniferous (Devonian).

The shale and quartzite overlying the limestone conformably are also probably a shallow-water phase of the Carboniferous. On the mainland chert is found with quartzite above the limestone, and in younger strata still (Triassic and Jurassic) there are beds of coarse conglomerate that are easily recognisable. Neither chert nor conglomerate has been seen with these younger shales and quartzites in the Langkawis and it is probable that they are not equivalent to the quartzite and shale series of the Peninsula (Triassic and Jurassic), but that they are the result of sedimentation in shallow Carboniferous waters. It is certain that the belt of shale on Pulau Tubah and the 700 feet to 1200 feet of phyllites and quartzites near Tanjong Pinang, on Pulau Dayang Bunting are interbedded with the limestone.

To sum up, the Carboniferous of Pulau Langkawi saw the following conditions:—

5. shallow water
4. deep water
3. shallow water
2. deep water
1. shallow water.

The exposures in the Langkawis are of value in that they show that some of the shale and quartzite on the mainland, mapped, for want of definite evidence, as something younger than the calcareous "Raub Series," may really be part of that series.

RECENT ELEVATION OF THE LANGKAWIS.

There is now abundant evidence that the Malay Peninsula and contiguous countries have recently been raised relatively to the sea-level. This elevation has left its mark clearly in the Langkawi Islands, and it is evident that, not long ago in the history of the world, the islands were more numerous than they are now. Perhaps the most striking evidence of this is the extent of sea-sand in the neighbourhood of Padang Mesirat (in the west of P. Langkawi). A rough road from here leading to Temoyang passes over much of this, and also over two distinct drops in level that may mark old beach-lines. The sand occurs in all the flat land from Padang Mesirat to Ayer Hangat, and near the S.W. fringe of the Gunong Raya granite mass, indicating that at one time the north-west part of Langkawi formed one island or group of islands, the south-east part another. Dayang Bunting, again, and Tubah, afford further evidence. The strait separating these islands is bordered by recent detritus over a large part of its course, and a long depression trending north-north-east and south-south-west in the southern part of Dayang Bunting looks as though it was once a continuation of this strait, which now turns sharply to the east near its southern outlet, as shown on the map. A small degree of sinking of the land now would convert Dayang Bunting into two islands, and possibly Tubah into two also.

When one sees the limestone hills rising from the low-lying land of Perlis, this evidence of elevation in the Langkawis is doubly interesting, because here in the Langkawis can be seen today the conditions that once obtained in Perlis, when the land now covered by fertile padi-fields was covered by the sea that lapped against the bases of limestone hills such as Chuping, Ketri, and Jerneh. If the elevatory movement continues, the Langkawi group will, in course of time, become united to the mainland as an isolated group of granite and quartzite mountains, with rugged limestone country and solitary hills of the same rock.

Some Malay Words.

By A. W. Hamilton.

The following collection of words and phrases contains some new matter but mostly only amplifications or corrections of meanings already given in Wilkinson's Malay-English Dictionary which I have taken as my standard owing to the difficulty of searching for Malay words in other and equally valuable English-Malay Dictionaries.

Most of the words are collected from the conversation of Riau Johore Malays whom I have met at various times. There is still a large field for the energetic worker in which to discover new colloquial words or common words used in a different sense to that given in the various dictionaries.

Abok-abok.	a sweetmeat of *pulut*, coconut and jaggery.
Achu.	to try on, as clothes—*achu pakaian*.
Agong.	to knock against, to strike one's head against. (W. *ragong*).
Alat-alat.	just like: for all the world like: *alat-alat rimau* a veritable tiger: *dahan itu alat-alat sapĕrti ular* the branch was exactly like a snake.
Ambil tahu.	to find out all about a matter, to gather information about, to obtain information about.
Ambin.	a sleeping bench. (Sh. platform for sleeping on).
Ambor.	a short baited line with no sinker which is allowed to float a short distance behind the boat in fishing for squibs etc. When a squib fastens on to the bait the line is gently pulled in and the squib quickly netted with a landing net.
Antar tanda.	to send a ring to the bride as a sign of engagement.
Ayer lĕbam or ayer tĕrlĕbam,	dead water as at spring tides (from *lĕbam* livid).
Balek bokong.	inside out, of a dress: (W. back to front: worn the wrong way).
Batang hari.	midday.
Batu gonggong.	sinkers on the bottom of a net.
Baut.	to put about in sailing (from Eng. 'about'.)

Bawa diri.	to conduct oneself (W. to run away). (Sh. to acquit oneself).
(*Bawa*), *Pĕmbawa.*	manner: way of doing anything or conducting oneself.
Bĕdal.	to tuck in; to have a good feed (derived from *bĕdal* to chastise). *Amboi orang itu bukan kĕchil bĕdal lagi,* 'My goodness didn't he have a whack of food'.
Bĕdang sila.	a kind of gypsum (W. *mĕdang sila*).
Bĕkah.	to split open.
Bĕlah urong.	to cut open a fish along the back (possibly derived from a method of cutting open an *orong*—W. a plaited bag used for cooking rice in).
Bĕngang.	bursting open of articles which should be closed as ripe seed pods etc. (W. too small: too light).
Bengang-bengut.	frequentative of *bengut* 'twisted; awry.
Bĕngkong.	a girdle (W. *bengkong*): *bĕngkong leher* 'a muffler: a scarf'.
Bĕrajar.	to play a fish (from *ajar* to teach).
Bĕrasap or bĕrasap tangan.	to have a hot time as in playing a strong fish.
bĕrdamar pipi.	with burning cheeks as from anger shame etc.
Bĕrdĕmpus.	to puff in one's sleep (*tidor bĕrdĕmpus*) to blow through the mouth when asleep.
Bĕrkĕlam.	to spend the night away (from *kĕlam* 'darkness'.)
Bĕntat.	heavy: compressed: solid. *Tanah bĕntat* 'a heavy soil'; *kueh bĕntat* 'a stodgy cake'; *bunyi bĕntat* a dull heavy ring as of a bad coin.
Bentet.	a small hard lump or swelling: *bĕrbentet-bentet* granular, having small swellings from bites etc. (W. *bintit* a small swelling.)
Bĕrtĕgang urat.	wordy warfare i.e. with taut muscles.
Bĕrtĕkak.	to argue obstinately from *tĕkak* obstinancy.
Bĕrtojang.	to push off: to clear off: from *tojang* a support something to press against: *mari-lah kita bĕrtojang* come on let us be off.

Bidan těrjun.	a midwife called in suddenly on an emergency and not the one regularly engaged for the case (*bidan těmpah.*)
Bilang kali	every time (from *bilang* 'to count').
Bilis.	catspaws of wind: *jaga bilis* 'look out for the catspaw', probably from the ruffled state of the surface of the water resembling a shoal of whitebait *bilis*: *bilis* 'blear eyed' W. is pronounced *belis* in Johore.
Biring.	the edge as of a foot or boot. Cf. *těmbereng.*
Boseh.	fat and flabby of the stomach: *běrboseh pěrut* having a fat pendant stomach.
Botok-botok.	a preparation of fish cooked with herbs.
Boyak.	fat, big bellied of a person (from *boyak* beamy of a boat.)
Buah gěli.	the kidneys.
Buah tahun.	fruits that are only in season once in the year: a windfall, a rarity. (Sh. rarely).
Buah tangan.	a little gift of some sort brought along with one. (Sh. a gift).
Bukat.	thick, muddy, churned up (W. disturbed of water.)
Bunga kantan.	the flower of a species of ginger used as a flavouring in curries (W. *tantan*).
Buta-masok buta.	to enter free i.e. without paying for admission.
Buta kayu.	absolutely illiterate.
Chakap měrampai.	to talk on various topics, from *rampai* 'miscellaneous'.
Chalong.	a metal cup: a tankard: (W. a small ladle used for oil; Win. a rubber tappers' cup).
Chantil.	a small triangular leg of mutton sail used with a *kolek.*
Chanting or changkok.	a rough tin lamp of Chinese make.
Chantis.	a scrawl: *tulis měnchantis-chantis* bad handwriting.
Chěkal hati.	to nerve oneself: to screw up one's courage: to steel one's heart (Sh. firm, steadfast).
Chělar, měnchělar.	to shine as a cat's eyes at night: *mata kuching měnchělar.*
Chělěbok.	a hollow in a bank, a waterworn cavity under the banks of a stream:—*tanah běrchělěbok.*

Chĕlumis.	extremely talkative: a babbler: one who reiterates (W. weak, sickly)
Chĕlus.	ability to pass through or in to an aperture or hole (W. coming in and out: free) *pintu itu kĕchil kĕreta tá chĕlus* the gate is so small that the cart cannot get through; *kasut itu tá chĕlus kaki sahaya,* my feet can not get into those shoes.
Chĕpat tangan.	light fingered; prone to pilfer (from *chĕpat* quick)
Chĕpau or mĕnchĕpau.	to paddle about in water: the sound of wading in shallow water.
Chĕpik.	slight lapping or splashing of water as when disturbed by a shoal of tiny fish (a diminutive of *chĕpok*).
Chĕra: bau chĕra.	a nasty smell.
Chĕridau.	noisy: clamorous.
Chĕring.	a syringe (either in imitation of the English or onomatopoeic).
Cheteng.	to lift up or hold out with one hand (also *genteng*).
Chochot.	a species of card game akin to *chĕki*: *main chochot.*
Chongeh.	gaping as a wound: *kĕpala di-tetak chongeh* with a gaping wound in the head due to a cut.
Chorak chele.	a pattern of small squares (W. a kind of cloth from Southern India).
Daas.	a keel.
Dahang.	bitter: acrid: *pahit mĕndahang* 'extremely bitter': *mĕndahangkan tĕkak* 'to make one's throat burn, of a very strong unpleasant flavour'.
Daun bi.	draperies round the top of a bed.
Dĕbuk.	a thud: a thump: to thump; *hati bĕrdĕbuk-dĕbar* to thump of the heart from fright. (W. sound of fruit falling on soft ground).
Dek.	by (= *uleh*) *di-empit·dek orang* 'squeezed by people': *di-makan dek anjing* 'eaten by the dogs'.
Dĕmam sĕjok.	ague: a feverish shivering fit.
Dĕmam urat.	a touch of fever brought on by over-exertion: ? rheumatic fever, fever with pain in the limbs (Win.)

Dĕrak (*suara dĕrak*).	the peculiar gurgling throaty sound uttered by birds like *mĕrĕbok* at times instead of a coo.
Empar: *mĕngempar*.	to swing round or turn outwards as the fore end of a long object when moving it: *kaki mĕngempar* to swing one's feet outwards in walking.
Ĕmpok.	soft; ready to fall to pieces; well cooked: *kain sudah ĕmpok* cloth that has worn thin and tears easily: *kayu sudah ĕmpok* soft rotten wood that crumbles when touched; *daging ĕmpok* meat that is tender and well cooked (W. soft of fruit or a potato).
Gahar.	to rub as one's teeth in cleansing them with husk sand etc.
Gandos.	a sweetmeat of riceflour and coconut.
Ganggang.	to scent clothes by placing them over a charcoal fire of sweetsmelling woods and spices, derived from its meaning of warming before a fire. *Dia dudok bĕrganggang kapada api* sitting warming himself before the fire.
Gapai.	to touch a person's body with one's hand as in telling him to come along.
Gayong.	any small vessel used as a dipper for water such as an empty tin etc. (W. a vessel made of coconut shells, Sh. a ladle).
Gĕdobor, mĕnggĕdobor.	baggy: too big of clothes. (Sh. baggy as loose trousers.)
Gĕlanchah.	broken of water: choppy of waves (W. *konchak*).
Gĕlatat, mĕnggĕlatat.	to rattle and shake.
Gelek.	to roll: to roll out: to run over: *kĕna gelek kĕreta* to be run over by a carriage. *Sagu di-suroh gelek sa-orang sa-biji* each person had to roll up a ball of sago: *batu di-jalan kĕna gelek baru rapat* the stones in the road will set close after being rolled. (W. folding the hand, a bent appearance of any part of the body the rolling out of wax sheets in braziers work (Sh. to drive over).

Gĕliga.	balls of coloured glass suspended as ornaments especially in Indian shops (from *gĕliga* a bezoar stone.)
Gĕramut, gĕriamut.	an expensive twilled cloth (W. *Gĕramsut*).
Gĕrapu, mĕnggĕrapu.	to seize greedily: to get up hurriedly.
Gĕrodak.	internal commotion or disturbance: *pĕrut gĕrodak* 'to rumble: to be disturbed of the stomach' (W. continuous clatter).
Gĕrombong.	a round wooden lacquer box with conical lid for clothes.
Giling.	to roll backwards and forwards: *pĕnggiling* a roller: *batu giling* 'a curry stone on which the curry stuff is rolled by means of a stone roller' *anak batu giling*: *giling kĕpala* to shake one's head as in sorrow or surprise (W. 'rolling into a cylindrical shape' also *gĕling* 'to shake the head'. Sh. *geleng* to shake the head).
Godek.	a back scratcher of coconut.
Gombang.	loose and billowy of clothes. *Bĕrkain gombang* 'wearing a sarong without trousers underneath'. (Sh. idem).
Gonggok.	a common millipede which rolls itself up into a coil: its burnt ashes are sometimes used as a poison.
Guar (*Kedah*).	a low eminence: rising ground.
Gubah.	i to cut into the shape of curling flower petals as cucumbers and pineapples for table decoration. (Sh. to ornament). ii a dome (Sh. idem).
Gulai tĕbing.	fish cooked in a sauce of *bĕlachan* and onions.
Haiwan (*hewan*)	engrossed in: wrapped up in: lost in as play etc.
Hamlau.	joking.
Harisah (*harithah*) *Ar.*	a hash of meat and flour: *bubor harisah* 'a dish given on 10th Muharram'.
Hirau.	to worry about: to take any notice of: *jangan di-hirau* 'take no notice of it'. *Tiada saya hiraukan kĕbĕratan-nya kĕrja itu* 'I did not worry about the heaviness of the work.' (W. *hirau* confusing, creating an uproar.)

Hukom.	"trumps" in playing cards. (Sh. idem).
Hulor.	to stretch out one's arm: to hand out or over: to pay out as rope *kalau hĕndak belok ka-kanan hulorkan tangan kanan* 'if you want to turn to the right hold out your right hand'; *hulorkan tĕmpat sireh* hand me the sireh box. (W. *hulor* 'letting the arm hang down slackly'. Sh. to put forth as the hand.)
Humban.	slung out: pitched out (W. *humban tali*-a kind of sling, Sh. *umban* to sling) *tĕrhumban kĕluar dari kĕreta* 'pitched out of the carriage'.
Ikat dagang luar or bĕrdagang luar.	to wear the *sarong* folded round the waist over the coat.
Ikat dodot.	to tie a *sarong* over one shoulder when it falls like a mantle usually with children.
Imbang.	a lull: the sudden drop of wind as in sailing behind a large object which intercepts it. *hati di-dalam imbang-imbangan* 'to be hovering in doubt or uncertainty'. (W. hovering about).
Jalu.	to walk in one's sleep.
Janganan.	a slab of peanuts mixed with *buah kĕras* and a little *bĕlachan* (Javanese).
Jangka.	to gauge the height at which the "weight" in fishing ought to be held off the bottom allowing for current, bottom etc, from *jangka* exact measurement.
Jaring tĕba.	a long net about 3 feet deep paid out in shallow water after which the surface of the sea is thwacked in the offing with a paddle or a commotion made by throwing stones so as to drive the startled fish into the net.
Jaru.	to lead trumps especially in playing *tĕrup*.
Jasad.	a severe bodily effort (from *jasad* 'body'.)
Jĕlejeh.	to leak, to dribble (from *jejeh* to leak); *budak salalu berjĕlejeh* children always dribble at the mouth: *khabar itu tĕrjejeh ka-mari* the news filtered or leaked through.
Jĕngah.	to take a quick look: to take a squint at:
Jĕrĕbak.	to heel over of a ship: *angin jĕrĕbak*-fitful gusty wind. (W. *jĕrĕba* to careen', from Klinkert.)

Jĕrĕmpak.	to meet unexpectedly: a sudden rencontre: to come face to face with (also *tĕrjĕrĕmpak jĕrĕmba* W., *sarĕmpak* and *tĕrsarĕmpak.*)
Jijak bara.	to step gingerly (i.e. like walking on live coals), to just touch the bottom, of the lead of a fishing line.
Jijak tanah.	the ceremony when a child is first allowed to come in contact with the ground.
Jotos.	to throw down on a marble with another one.
Kachang hantu.	street corner boys: gamins.
Kachang-kachang.	buckshot pellets.
Kahak (*bĕrkahak*).	phlegm: to cough up (Sh. phlegm, W. *dahak 'phlegm'*).
Kain gĕrus.	a *sarong* rubbed smooth and shiny with a shell (*siput gĕrus*) (W. *gĕrus* polishing, Sh. to smooth cloth with a shell).
Kain kĕrap.	closely woven of cloth.
Kaki leher.	collar of a coat.
Kalah.	weak in certain senses. *Kalah rambut* the weakness of hair which turns white while one is still young: *kalah siput* 'a person who cannot eat shellfish without being ill or affected by a rash'.
Kasar.	big, derived from its primary sense of 'coarse' *ikan kasar-kasar* 'huge fish': *bĕlanja dia kasar* 'his expenses are very heavy'.
Kawah.	*makan nasi kawah* 'to partake of rice from the cauldron': a disparaging remark applied to retainers of a prince denoting that they are not free men who fend for themselves but exist on the general store of bounty provided by their lord.
Kĕbor.	to stir up as water or sand: to churn up. (W. to clean a well by stirring up the water and bringing the dirt to the surface; Sh. to stir up mud: to stir water to frighten fish). *pĕnyu kĕborkan pasir akan mĕlindong tĕlor-nya* 'the turtle turns up the sand to cover its eggs'.
Kechah.	to scatter about. . *Bĕrkechah* scattered around: strewed about.
Kĕchai.	broken to bits: broken to smithereens: well shuffled or divided of cards (W. *kĕchai* 'rending to pieces'.) *batu ditembak sudah bĕrkĕchai* the rock was blown to atoms.

Kechoh.	turmoil: disturbance: noise: (Sh. row: noisy disturbance).
Kekah.	to send a person on a pilgrimage to Mecca or an animal as a sacrifice in place of some member of the family who died before he could go himself.
Kekong.	stiff as from sitting in an awkward position.
Kĕlambu ponjot.	a mosquito net for children which comes to a point like tent and is suspended by string (*ponjot* 'to gather up the corners so as to form a sack').
Kĕlang-kĕlok.	twisting and winding as of a road: *bĕr-kĕlok-kĕlok* 'twisted and bent' a frequentative of *kĕlok* (W. an artistic curve).
Kĕlara.	the young fry of the *sĕmbilang* fish (*anak kĕlara* is used sometimes as an euphemism for *anak dara*).
Kĕlarai.	a strong twilled cloth used for sails (W. 'a peculiar diamond pattern in cloth'. (Sh. twill *bĕlachu kĕlarai*).
Kĕlawar bĕbar.	running in and out and all over the place as children playing about a house. *Jangan-lah kĕlawar bĕbar-* 'dont be darting about like bats'. (W. *babar* 'expansion').
Kelek anak.	an addition to a house at the sides
Kĕliau.	to swarm of flying insects etc.
Kĕlibang-kĕlibut.	swarming: darting about (a frequentative of *kĕlebang*).
Kĕlindan.	vain regrets: unfulfilled desires. *mati tiada kĕlindan lagi* to die without regrets and all one's desires satisfied.
Kĕlopek, (mĕng-gĕlopek).	to peel after sunburn etc. (from *kopek*).
Kĕlosok-kĕlasar.	in great haste.
Kĕlup.	to pop in as a snail into its shell: to be pulled well over as a cap on the head: to be well covered.
Kĕmanchar.	*santan* obtained from the second rinsing and squeezing of grated coconut.
Kĕmas.	neat: dainty: *kaki kĕmas* 'a small neat foot; *rumah kĕmas* 'a dainty house' (from *kĕmas* 'to pack up to tidy up'.)

Kĕmbal.	a small square paper plaited box for containing *bunga rampai* at weddings (W. a sort of pouch or box).
Kembok.	a bowl or finger basin like a *sangku* but with a taller foot. (W. *kembok* 'a brass finger bowl'.)
Kĕmpunan.	any unsatisfied desire that is liable, according to Malay notions, to bring harm to the person by causing him to fall etc. Suppose food had been prepared for a person, but before he could partake of it he were called away on urgent business. The usual course would be to ask to wait a moment to take his food and, if he could not spare the time, he would be invited to taste it, lest his mind should be distracted by dwelling on what he had missed and so cause him to stumble etc. *nanti-lah makan dahulu; kalau ta'makan pun, jamah, takut kĕmpunan.*
Kĕnut.	a life preserver. (Sh. *tali kĕnut ib.*)
Kĕnyop.	to pop in as a snail into its shell.
Kenyut.	awry: to pull a face. *Kenyang-kenyut* the jerky walk of an elephant.
Kĕpal-kĕpal.	a cake of candy sugar and coconut.
Kĕpil.	to hug, to draw up close to: to keep close to: (*kolek mĕngĕpil pantai*) 'the *kolek* was hugging the shore': (W. hardby: close together; Sh. to bring alongside).
Kepot.	awkward: ill at ease. *Bilek kepot* 'a small awkward room.' *buat kĕrja bĕrkepot-kepot* to do anything awkwardly and in a self conscious manner' (W. 'leaning or crouching over on one side.
Kĕrat.	to cut in playing cards.
Kĕrat-kĕrat.	a disease in which the sole of the foot splits in several directions and will not heal.
Kĕrĕtis.	a nibble. *Ikan makan kĕrĕtis* to nibble the bait, of a fish.
Kĕring darah.	struck all of a heap: to get a shock on hearing ill news etc.
Kĕringkan; kĕlingkan.	thin strips of gold foil for working flowery patterns on slippers etc. (W. *keringkan* an Indian cloth fabric.)
Kĕring-kontang.	absolutely dry: (W. *kĕring-kĕrontang*).

Kĕrok.	to scratch hard: to scrape away: to dig into: *bukit di-kĕrok uleh orang* 'the hill was dug into': *leher baju hĕndak di-kĕrok ka-bĕlakang* 'the coat needs cutting away at the back of the neck'. (W. a curry comb; Sh. to burrow).
Kĕroncho.	the male king crab: it is much smaller than the female and invariably found with the latter; if separated and thrown back into the sea it soon finds its way back to its mate hence *bagai kĕroncho dĕngan bĕlangkas* is a simile for 'inseparable' of lovers or husband and wife.
Kĕropis.	to toy with: to fiddle about with as odds and ends of work or things: *tangan kĕropis* or *mĕnggĕropis* 'unable to keep still' of hands, that must always be occupied with some little thing.
Kĕsat.	to wipe as feet or a lamp a table etc. *Pĕngĕsat kaki* 'a door mat' (W. 'to wipe moisture off a smooth surface).
Kĕsop: tĕrkĕsop.	sucked in: to shrink in (W. 'a sucking sound: attitude of a man with head sunk in shoulders').
Kĕtek.	to wiggle waggle: to frisk *burong itu tĕrkĕtek-kĕtek ekor-nya* 'the bird was shaking its tail'. *orang bĕrjalan tĕrkĕtek-kĕtek* to walk waggling the hips.
Kĕtok-kĕtok.	tapioca boiled and mashed with coconut and sugar.
Kĕtuat.	a wart: (W. a large pendulous wart).
Kikis, (mĕngikis).	to skin person of his possessions metaphorically (from *kikis* 'to file to scrape): *pukat kikis* 'a drift net of fine mesh: a fleecer'.
Kinjang, mĕng-gĕlinjang.	running about: running all over the place.
Kinyau.	glossy of the hair.
Kochoh.	to shuffle cards: to switch about a bamboo rod in fishing for squids *mĕngochoh kĕreta* or *mĕngachar kĕreta* (W. *kochoh* haste, hurry.)
Kochoh ganyah.	in great haste: (Sh. slapdash) (a frequentative of *kochoh* 'haste').
Kodek.	to stir around quickly as when cooking scrambled eggs etc.

Kojol.	stiff, dead: *dia sudah kojol* he is dead: *tĕrkojol-kojol saya mĕnawakan dia;* I was stiff with laughing at him; I was nearly dead with laughing at him.
Kontot.	stumpy, maimed.
Kuchil.	to dog a person's steps. *Tĕrkuchil ka-ulu-ilir* to follow up and down; *tĕrkuchil juga bontot-ku* 'to follow behind a person'.
Kuching tidor,	*kuching bĕlengkar* a single large durian pip in one of the cavities of the fruit.
Kunyel.	to mouth food as a toothless person chewing on the gums.
Kura-kura kaki	the instep.
Kurang junjong.	a roof that is not high or steep enough, from *junjong* 'to carry on the head'.
Lagi.	is often used colloquially for *dari* from, *lagi sini sampai ka-sana*, 'from here to there'; *lagi kĕchi sampai bĕsar,* 'from youth up'.
Lanau.	wet and slimy: *bĕlanau* wet and slippery, of a floor: wet and nasty of a sarong wetted by a baby. (W. 'slimy mud'.)
Langkah kanan.	to be in luck: to arrive unexpectedly just in time for a meal or an entertainment etc. (W. to arrive punctually).
Langu.	a nasty unpleasant taste. *Tĕkak langu* a nasty taste in one's mouth, due to illness.
Lantai muat.	a removable flooring at the bottom of a *kolek*.
Lapar mata.	hungry of eye, of a person who wants all he sees but has not really the appetite to consume it.
Lasak.	frequent use: *tahan lasak* 'to stand use: to wear well' (W. *pakaian pĕlasak* every day clothes.)
Lawang.	a way: a course; an opportunity, derived from its original meaning of a gate. *Sĕkarang tinggal dua lawang*: 'there are two ways or courses open to you now: two chances in playing cards.
Lĕchoh.	sodden: soft and wet: *pisang sudah lĕchoh* 'soft bananas' (W. 'steeping vegetables or rice in water; *burong lĕchoh* a sodden bird'.)
Lĕchun or lĕnchun.	dripping wet (*linchun* W.)

Lĕlar.	to drag: to hale off *kolek di-lĕlar uleh budak* 'the *kolek* has been dragged off by the children.' *Anak kuching di-lĕlar ka-sana ka-mari* 'the kitten was dragged about from place to place' (W. 'continually: reiteration').
Lĕmbang.	to swell and become soft as the roots of trees planted in wet ground or feet long immersed in water.
Lĕmpam.	lazy: *lĕmpam bĕnar kĕrja* half hearted work.
Lĕmping.	thin and flat: light flat cakes: *mĕlĕmping saperti kĕrtas* thin as a sheet of paper, *pĕrut-nya mĕlĕmping* 'flat and empty of the stomach.' (W. *lĕmping* 'light flat cakes').
Lĕndat.	pressed down, crushed by some heavy body. *Kain di-lĕndat buk-buk* 'a sarong crushed by having books placed on it': *meja rosak di-lĕndat kayu* 'a table marked and spoilt by a heavy piece of wood being placed on it' (W. trampled down of undergrowth).
Lĕngkang.	opened out of horns or a fish hook (W. *langkang*).
Lĕpar hudang.	balls of *pulut* rice and prawns.
Lĕpar kajang.	the ridge pole between two uprights (*topang*) for a *kajang* to rest on (W. *lĕpar*).
Lepet.	a fold, a hem, a portion of anything bent over or turned down. *Kĕlepet baju* 'the hem of a coat: the turn down collar of a coat': *mĕlepet paku* 'to bend over a nail half driven home'.
Lĕrah.	to fall down: to fall off a place to which it properly belongs. *Kain mĕlĕrah* or *tĕrlĕrah kain* to slip down of a *sarong* *Buah jatoh mĕlĕrah* 'to fall in quantities of fruit, old and young'. (W. 'to be blown down, of fruit: knocked out of its binding as a book').
Lĕsah.	swishing: pelting of rain; *hujan mĕlĕsah* or *mĕndĕsah* driving rain (W. *dĕsah* the swish of rain through a leafy covering.)
Lesut.	shrunk: shrivelled up: (W. 'shrunk of fruit) *susu-nya lesut* 'having shrivelled up breasts': *mĕlesutkan daging* 'to shrivel up the flesh'.

Lidah kĕras.	an inflexible tongue as that of a person who finds it difficult to pronounce foreign words as opposed to *lidah lĕmbut* 'a facile tongue.'
Likau.	short lengths of *bakau* fire wood ready cut for sale.
Lingar.	to be continuously on the watch, furtive glances. (W. to glance sideways.)
Lodeh.	thoroughly stirred and mixed: (Sh. boil to softness) *sayor lodeh* Sh. mixed vegetables cooked together a hotch-potch of several kinds of vegetables.
Lodoh.	soft: pulpy as wet shoes, fruit etc. cooked to shreds. (W. *lodeh;* Sh. pulpy partly decayed: overripe).
Lodok.	to dive head first: *lodok nak balek* to be in a great hurry to return.
Lokor,	hard and unripe as a durian (*mĕngkal*).
Lokos.	bare: bald and bare as a cliff or leafless tree: *rambut di-gunting lokos* 'bare as a head of hair cropped short'. (W. 'bedraggled').
Lompoi	completely: *tudong lompoi* closely veiled; *harta bĕnda lompoi di-gasak pĕnchuri* 'all his belongings were taken by the thieves'.
Lonchor.	to shoot in horizontally: to dart. *Hujan mĕlonchor ka-dalam bilek* 'the rain beats in to the room': *di-lonchor-nya lĕmbing kapada aku* 'he hurled a spear at me'; *lonchor kolek ka-mari* 'shove the *kolek* over here with a push.' (W. to glide out of its sheath as a knife etc.)
Lonjong.	tapering: oval. *Durian lonjong* 'a long tapering durian' as opposed to a round one: *kĕpala-nya mĕlonjong* 'a tapering head' (W. 'tall and thin as certain trees').
Lompang.	*kueh lompang* 'sweetmeats of coloured blancmange made in the shape of small mortars' (No doubt derived from *lompang,* Javanese, 'a small stone mortar').
Lopong; tĕrlopong.	gaping: wide open, *mĕlopong mulut* 'open-mouthed': *chĕlopong* 'having a large hole.'

Lorong.	to put through, derived from *lorong* 'a lane: *minta lorongkan niat* 'to ask for one's desire to be put through or granted.' (Sh. *lorongkan* 'to comply with a request') cf. *luluskan*.
Loseh.	to slip down slightly of a *sarong* not firmly tied: *ikat kain tĕrloseh bawah pĕrut* 'the fastening of my sarong had slipped below my stomach.'
Lukah, mĕlukah.	to expose one's person, as in sitting down carelessly when wearing a *sarong* (probably derived from *lukah* a fishing trap with open mouth.
Lumat.	well shuffled of cards: *banchoh lumat-lumat* 'to shuffle thoroughly' (from *lumat* 'fine: well minced).
Lup-lap.	gusty of wind: *angin lup-lap*.
Magang.	drunk (derived from its original meaning of overripe of fruit).
Majal.	blunt:—*pisau majal* 'a blunt knife: *akal majal* 'a blunted intelligence': (W. short, stumpy; Sh. blunt).
Mak labu; mak buyong.	joking references to women in an interesting condition.
Mangar.	hard and firm as of breasts.
Manggol (K.)	a hummock: a mound of earth (W. *tanah manggul* 'high land').
Mangkok som.	a chinaware cup with a cover to it.
Mangkong.	to strike: to club (from *pangkong*).
Mata kĕlĕmayar.	to become uncertain in temper. *Naik kĕlĕmayar mata aku* 'to become incensed: to see red' (*kĕlĕmayar* 'a luminous millipede.'
Mata tolak raih.	a discerning eye: a critical eye.
Mayang.	to cut in thin slices: *bawang di-mayang* thin slices of onion. (Sh. to slice thin).
Mĕgun.	buried in thought: meditative (W. *pĕgan*: *pĕgun* 'meditatively, silent'); *mati tĕrpĕgan* 'to be struck dumb as when turned to stone by a wizard.' (Sh. *tĕrpĕgun* meditative dumbfounded:)
Mĕlalak.	to cry continuously as a baby. *Ta' mĕlalak* 'to miss fire of a gun, to fail to explode of a cartridge.' (W. *mĕlalak* to miss fire of a gun). (Sh. *lalak* 'to howl of children').

Mělělai.	to hang empty: to hang down slackly: to draw down (W. 'to draw a bough downwards'). *Pěrut mělělai* 'an empty hanging stomach.'
Mělěngeng.	naked.
Mělewah.	abundant: *kasut mělewah di-kědai* 'shoes are abundant in the shops.'
Měleweh.	to talk nonsensically: to drivel. *Chakap měleweh.*
Měmar.	crushed and soft as bruised fruit or flesh (W. 'bruised crushed of a fruit').
Měmbuas.	naughty: restless of a child (W. *buas* wild: ferocious of animals). (Sh. to romp).
Měmburas.	looseness of bowels (said of children).
Měmpělas.	to sand paper smooth (from *měmpělas* a rough leaf used for this purpose.
Měnangkan.	to take the part of: to justify: to stand up for a person, from *měnang* 'to win.'
Měndak.	to settle of soil or cloudy water etc. (Sh. to precipitate form a sediment).
Měngachar.	to fish for *kěreta* (small cuttlefish) by beating the water gently with a rod having a red *tumu* flower for bait but no hook. The fisherman wades at low tide on likely banks and slaps the water near the holes in which the cuttle-fish lie. As they seize the bait and twine round the end of the rod, they are quickly drawn in, removed and strung on a piece of rattan. *Pěngachar* or *buloh kachar* the rod for above.
Měngada-ngada.	to show off: to put it on: to try to create an impression (from *ada*) (Sh. to be patronizing).
Měngampu.	to flatter, (from *ampu* to support from below).
Měngangkat-angkat.	to praise up: to flatter: *makan angkat* to appreciate flattery (from *angkat* to raise.)
Měngěchong.	to shuffle cards.
Měngongoi.	to sob.
Měninggal.	dead (from *tinggal* 'to leave behind.') (Sh. to die).
Měnjěrok.	to annoy a person: to exasperate: *měnjěrok hati pěrut orang* 'to exasperate; to try a person's patience.'

Mĕntong.	to go straight ahead as a ship on a course.
Mĕntua taya.	fathers in law, a frequentative of *mĕntua* as *ipar duai* is of *ipar.*
Mĕnurun.	to be possessed by a spirit as a medium in a trance (from *turun* 'to descend.')
Mĕnyampah.	to be in the way: useless of persons or things: so much rubbish: (from *sampah* rubbish.)
Mĕnyengkek.	to strut of a cock: to show off before a hen.
Mĕrengkong.	spread out. *Mĕrengkong di-tĕngah laut* spread out in the middle of the sea: *tidor mĕrengkong* to sleep in a heap.
Mĕrus.	to slip of earth: *tanah mĕrus* 'a landslip.'
Mĕrut.	to swallow the bait (from *pĕrut* stomach).
Molong (*buah molong*).	a sweetmeat of lumps of sweet dough in syrup (not *buah Mĕlaka* vide W.)
Momok.	a bogey. (Sh. idem.)
Muka merah mĕndĕrang.	a flaring red face (W. *dĕrang* a clanking sound; *mĕrang* fiery red.)
Mukun.	a dish or bowl with a cover and wire handles (W. a bowl or cup; Sh. a covered bowl.)
Mumbong.	heaped up: piled up. *Nasi mumbong* a plate piled up with rice: *sukat mumbong* a heaped up measure of grain etc. (W. loaded above the gunwale of a ship. (Sh. heap up as grain *isi mumbong-mumbong* to overload.)
Muntah bĕlut.	a medicinal wood.
Naik api.	to catch on fire as a house.
Nyampang.	should it happen: perchance: just in case: *nyampang-nyampang kalau lalu singgah di-rumah aku* 'if you should chance to pass by drop into my house.' (W. *sa-nyampang* 'just exactly now.')
Nyanyah.	old and doting, silly and forgetful. (Sh. babble-talk much.)
Olak.	backwater: slackwater: *di-olak pulau* in the lee of an island; *ambil olak* to keep in the slack water along a coast where there is little current; *mĕngolak* to fish in a backwater. (W. 'an eddy.')

Pa'akal.	it is lucky that: it is just as well that: if it was not for the fact that, *pa'akal sahaya bĕtina; kalau tidak sahaya buat* if it was not for the fact that I am a woman I would do it: *pa'akal ĕngkau ini anak raja; kalau tidak, sahaya bantai* it is lucky that you are a son of the nobility or else I would thrash you.
Pak.	a flat wooden cross-piece as a bar for closing a door or strengthening the legs of a long desk. (Sh. nail of a fence.)
Paku kĕmbang.	spangles for shoes.
Paku sanggul.	ornamental gilt nail heads or sparkles sometimes worn in the hair.
Paldu.	awnings on board ship etc.
Paltu.	temporary: auxiliary: *ikat paltu* a temporary knot: *sokong paltu* a temporary or spare boom: *buat paltu sudah-lah,* just make a temporary thing of it. (W. 'auxiliary assistant.')
Panah lintar.	"May I be struck by a thunderbolt:" an emphatic denial.
Panas baran.	smouldering heat: heat which does not easily evaporate as that of *baran* or low-lying black swampy land to which the tide penetrates: *panas baran* or '*panas kĕrak*' is used of a smouldering temper which takes a long time to cool.
Pandang tiada mata.	to regard with contempt: to pay slight regard to a person. (Sh. to look down on.)
Panggang.	to lie over and across: *jatoh panggang* to fall across some other object as a tree falling on a prone tree or across a ditch. (from *panggang* 'the position of roasting on a spit.')
Pangsi.	the black fluid secreted by a squid, ink (also *pansi.*)
(*Panjang*) *Mata panjang.*	given to observing the ladies.
Panjang tangan.	thievish propensities given to appropriating other people's goods. (Sh. thievish.)
Panjat para.	a term in fishing to describe when hook and trace wind around the line instead of floating free.

Parit (*bĕrparit, mĕmarit*).	to get crossed of fishing lines: to drag for anything with a rope (W. to trip the anchor.)
Pĕguam.	a lawyer. (Sh. a pleader.)
Pekak.	the knave or jack in a pack of cards.
Pĕkap.	to staunch: to dab lightly as a wound with cotton wool (related to *tĕkap*).
Pelar.	splay footed.
(*Pĕlontang*) *Tiada pĕlontang lagi.*	There are no longer any drags *i.e.* on your movements: no further encumbrances. (From *pĕlontang* 'a float.')
Pĕluang.	an opportunity (from *luang* 'to abate of a storm.) (Sh. sufficient time: opportunity.)
Pĕndap.	to soak to pickle: *tanah di-bawah rumah sudah bĕrpĕndap dĕngan kotor* the ground under the house is soaked with filth: *dudok pĕndap di-rumah* to sit tight at home and not go out. (W. *ikan pĕndap*—fish preserved in salt.)
Pĕnĕbok kĕpala.	a head hunter, who collects heads as a foundation stone and blood offering to the spirits of the earth when an important building is to be erected. This myth is still firmly believed and in Singapore there have been one or two scares recently when people thought the Government wanted heads to put under the new bridge and more especially under the new reclamation wall at Telok Ayer as it was always sinking.
Pĕngĕsap.	to dry up or wipe away as tears: *pĕngĕsap ayer mata* (W. *usap.*)
Pensor.	the gut trace which connects the end of the line proper with the much shorter *pĕrambut* or gut trace which carries the hook.
Pĕntek.	to snap one's fingers (vide *pĕtek*.)
Pĕnting.	to strum a guitar or other stringed instrument (vide *pĕtek.*)
Petok.	to bite of a fish (a variation of *patok.*)
Pĕnyek.	crushed flat, as a man run over by a steam roller. (Sh. to crush between two surfaces.)
Pĕnyet.	pug nosed: flat nosed (W. *pĕnnyet.*)
Pe'pa	a large abscess on the back which is usually fatal. (Sh. *pa'ipa* a carbuncle.)

Pĕranchang bĕsi.	a crowbar. (From *ranchang.*)
Pĕsam.	tepid (*pĕsam-pĕsam kuku* is equivalent to *suam-suam kuku* luke-warm.)
Pĕtĕri mandi.	a sweetmeat like *onde-onde* with sugar outside.
Pĕtis.	the pungent sauce eaten with ***rojak.***
Piantan.	the season: the right time.
Pinga: ***tĕrpinga-pinga.***	distracted, lost, confused, bewildered (W. *inga* absent minded.)
Pintal.	a twister: to cheat (slang from ***pintal*** 'to twist.')
Pingat.	a medal: a decoration. (Sh. decoration mark of honour.)
Pongkang or ***balek*** *pongkang.*	upside down: topsy turvey: wrong end first: *pakai kain* ***balek pongkang*** to put on a sarong upside down.
Potong ***wajik.***	diamond shaped: lozenge shaped (from the way in which the sweetmeat ***wajik*** is usually cut.)
Poya.	a wooden baling scoop.
Pudi.	to cover with: to mix with: ***ikan di-pudi*** *dĕngan rĕmpah* the fish was dipped in and smeared with sauce (in cooking): (W. ***rĕmpah*** *pudi* 'a mixture of spices:' ***pudi*** Sh. to beat up as eggs).
Pugau (tĕrpugau).	staring one in the face: looming large: much in evidence ***rumah tĕrpugau dĕpan mata*** 'there's the house as large as life in front of your eyes.'
Rakas; mĕrakas.	to clamber up as the side of a house hill etc.
Rĕbah 'luan.	to allow a sailing boat to fall away before the wind, ***angkat 'luan*** being to bring her up into the wind.
Reban; tĕreban, remban.	thrown aside, hurled out of one's position.
(Rĕjah) Mĕrĕjah.	to make a dive.
(Rĕjah) Tĕrĕjah.	to dive down, to take one leap, to sweep down of a storm of wind.
Rencheng.	tall and thin: ***badan-nya rencheng*** of tall spare build.
Renggut.	to wrench away (***rĕnggut*** W.)
Rensa.	grumpy: fed up: ennui. (See ***ronseng.***)

Rĕsip.	to ooze out as perspiration etc., as air out of a tyre (Win.): ***mĕrĕsip darah dari kulit*** the blood began to come through the skin: *mĕrĕsip bunga* of flowers just beginning to show.
Rĕsok, mĕresok.	to dart into a hole.
Rodak, gĕrodak, mĕnggĕrodak.	internal commotion or disturbance: a rattling noise: (W. idem) *pĕrut gĕrodak* to rumble and be upset as a stomach after taking a pill: *hati rodak nak balek rumah* feelings violently agitated to return to one's home: *ikan mĕrodak dalam ayer* to make a commotion in the water of a fish churning up the sedinent.
Ruak.	to expand to become enlarged to spread: *api mĕruak ka-kanan dan kiri* the fire spread right and left. (W. *ruwa* 'expansion of a hollow' and *ruwak* 'to spread.') *Luka di-luar kĕchi tĕtapi dalam pĕruak* the wound is small outside but internally there is a gaping hole.
Rutu, mĕrutu bĕrutu rutu; gĕrutu, mĕnggĕrutu.	rough, nobbly, a lumpy surface: *kĕpala mĕnggĕrutu* a head covered in lumps; *kulit limau mĕnggĕrutu* a very rough skinned orange. (W. *gĕrutu* 'rough coarse'; Sh. 'asperity of surface.')
Rungas; bĕrungas.	untidy of hair.
Runyai, mĕrunyai.	to blether.
(*Runyas*), *Mĕrunyas mĕnjĕrunyas.*	frayed of cloth: having a nap.
Sa-bau.	used to; accustomed to; to mix with: *bĕlum ada sa-bauan kĕrbau itu* 'the buffaloes are not used to one another yet.' (derived from *bau* 'smell.')
Sa-bulu.	of a feather: of the same sort: to get on well with: *Sahaya ta' sa-bulu dĕngan dia* 'I don't get on with him at all.'
Sagu hati.	little presents such as one gives to a woman to win her affections. (Sh. present gift in expectation of a favour.)
Salang.	is often used for *sĕdang* 'even though': ***salangkan orang baik lagi di-tangkap ini kan pula orang jahat*** seeing that even respectable people are arrested how much chance is there for the wicked.
Salong asap.	soot: lamp black; (W. ***sulang asap.***)

Saludang.	a skiff: a decked racing skiff for single sculls. (Sh. outrigger racing boat.) (W. *sampan ludang* a type of Malay boat.)
Sampai.	the perfection of: perfectly: *sampai chantek* a perfect beauty: *sampai jahat* an absolute rotter (from the original meaning of, 'to attain, to reach.')
Sandalu.	leaning slightly: sloping: (W. *angin sĕndalu* a moderate breeze: Sh. a ramp.)
(*Sangga*), *Papan sangga.*	a ceiling, (from *sangga* to bear up to protect.)
Santau.	to fish by putting a little tuba poison into a portion of squib and throwing it into the sea: this bait if eaten by a fish causes it to rise to the surface in a dazed condition when it is easily captured.
Sa-talakan.	to attune. (Sh. idem.)
Sa-totet.	a tiny piece: a small amount.
Sa-toyot rambut.	a wisp or small bunch of hair.
Sauk.	to scoop up (W. to scoop up with the hands.) *sĕsauk* a landing net for fish: *sauk pĕrĕmpuan* to pick up a woman; *Pa'sauk* a filcher: a good hand at snatching up things (Sh. a thief.) II. the stem of a *kolek*. *Sauk luan* cutwater; *sauk bĕlakang* sternpiece. (Sh. prow stem.)
Sawang.	*kĕna sawang* to be attacked by an indefinite illness not unlike *tĕrkĕnan*.
Sĕbu: *mĕnyĕbu.*	to swirl or swish past of water.
Sĕdut.	to sniff up the nose as water (W. suppressed anger; vexation; Sh. to inhale.)
Seka.	to wipe: to rub off with a cloth.
Sĕlaseh.	basil. *Hitam sĕlaseh* a cafe-au-lait complexion of a Eurasian. *Ayam sĕlaseh* the small white silky fowl with black bones.
Sĕlĕngar.	overpowering as a scent, from *lĕngar* dizzy. *Sĕlĕngar bau kueh ini* 'the scent of the cake is overpowering.'

Sělěnnyap.	*angin sělěnnyap* a dangerous form of complaint which attacks persons suffering from hydrocele and causes the sudden disappearance of the penis into the body of the sufferer resulting in death if not seized and brought back at once to its normal position (derived from *lěnnyap* 'disappearance.')
Sěliat.	to peel off the hide of a dead animal when skinning it (from *siat.*)
Sěluar sarong nangka.	tights (from the plaited covering put over a jack fruit to protect it and which is usually tightly stretched.
Sěmbap.	puffy of the face: *muka sěmbap* a full puffy face often seen amongst Chinese and Japanese. (Sh. *sěmbap kaki beri-beri.*
Sěmbir, běrsěmbir.	a fringe: to be squeezed out as a slight amount of matter from the edges of a mould. (W. rim of a plate.)
Di-sempangkan Allah ta'ala.	May God preserve me from it (a pious ejaculation from *sempang* a cross road to turn off.)
Sěmpudal.	dirty as hands with particles of food etc. adhering to them after culinary operations.
Sěmul.	a Javanese dish of thick *tumis* (*tumis pěkat.*)
Sěngeh.	to part slightly as the lips: to gape slightly as the edges of a wound: *těrtawa sěngeh* to smile with lips slightly parted. (Sh. to show the teeth.)
Sěnggeget.	a game played with a disc '*porok*' which is thrown.
Sěngkang sotong.	a cross. +
Sěngkělan.	crossed as of the arms or a wicker pattern: *běrsěngkělan tangan* with arms crossed behind the back as when "standing at ease" (*sěngkělang* W.)
Sěngokol.	curled right up as from cold when lying in bed or from laughter. (From *kokol* curled up.)
Sěnonggeng.	upside down: hanging head downwards (from *tonggeng* lifting the posterior.)
Sěnotol.	upside down: on its back of a top.

Sentak.	a jerk: a sudden pull. *tidor tĕrsentak* to start in one's sleep. W. *sĕntak.*)
Sĕpeng.	a wooden flange which is nailed on to an upright in a wall and carries all the partition planks.
Sĕpit hudang.	a loop of string as at the end of a *ranggong* or a loop of braid which forms the fastener of Chinese buttons: (Sh. eye splice.)
Sĕrĕbok.	powder *i.e.* a love philtre: *kĕna sĕrĕbok* to have been doped by a love potion.
Sĕriding (mĕnyĕriding).	to lie on one's side (from *siding.*)
Sĕrikaya kĕtulangan.	a sweetmeat of *sĕrikaya* with small pieces of pumpkin in it.
Sĕrip.	a fringe: *sĕrip kĕronsang* a filigree edging to a brooch.
(*Sĕsat*), *Mati sĕsat.*	to die a violent or sudden death (from *sĕsat* astray.)
Sĕtapak.	the small open sided verandah or landing at the entrance to many Malay houses.
Siah.	to pull apart gently as a birds feathers or the orifice of a wound.
Sigong.	to strike on getting a bite when line fishing by jerking the elbow backwards. (W. a digging motion with the elbow.
Simbong.	a variable wind. a break in the wind due to a headland or to passing under the lee of a ship: *jaga simbong* look out for a change in the wind (a word of warning when sailing.) (W. *simbang* false, unreliable: *musim simbang* change of monsoon with variable winds.)
Simun.	fair, white: *puteh simun* very white.
Sindan.	a small open low plaited basket.
Singar: *musim singar.*	a season in which there are many dangers about as from robbers etc.
Sogang.	to support temporarily: a light bamboo pole used to stretch out the jibsail. (W. *sogang* palisades.)
Sokong barat.	a long stout pole in house roof construction which clamps the top of an end roof strut to a diagonal cross beam in the centre of the house and so prevents the whole roof from wobbling.

(*Solok*), *Masok solok.*	to become a recluse.
Sondol.	to butt or jog with the head: (W. lowering the head as a bull about to charge.) *bangkai babi di-dalam laut di-sondol oleh ikan yu* the pigs carcase in the sea was jabbed at by the sharks.
Sondong or *sungkor* (Malacca).	a large triangular shrimping net pushed before one with its apex at one's breast. (W. walking with a stoop forwards.)
Sondong hudang or *mĕnyondong.*	to shrimp with this net.
Sosol.	to appear suddenly: to jut out: to spring from: to emerge.
Sotor.	a Javanese dish of rice and meat.
Sulap.	a fault in cloth, where threads are missing or get bunched.
Susu kabu-kabu.	the bulbous thorny knobs on the trunk of the cotton tree.
Susu kubong.	a large blind boil in the armpit.
Ta'alik.	conditions in a marriage contract with regard to divorce (*talak*); a suspended *talak* such as "If I leave you for 6 months without any sustenance or word as to where I am, you are automatically divorced."
Tadah kanan.	to have the sail out on the starboard side.
Tala.	time of music: in harmony: in time: repetition at harmonious intervals (W. in harmony: in harmonious response one to another as a band taking up a tune begun by another etc.
Tala biola.	the pitch or note of a violin: to tune up a violin.
Di-tala-nya minuman.	to go on drinking steadily: to take drink after drink.
Tali kanjang. *Tali kĕranjang.*	a specious rogue: a smooth tongued sophist: deceitful knave with a winning tongue (W. *bĕrtali kanjang*) K. to play the fool also *tali kanjang* a soft spoken but hopelessly unreliable man.
Tali mantil.	a slight rope which draws up the *sokong* in a kolek. (*Mantil* Sh. topping lift.)
Sa-genchel tali.	a coil or twist of string as in a shop ready for sale (W. *genchel* 'stringlike.')
Tampa.	to suspect. (Sh. idem.)

Tanah gambut.	peaty soil: springy turf of dead grass etc. (W. *gĕmbut* surface motion; Sh. *paya gambut* a bog.)
Tangkap lelong.	to buy or get anything at an auction.
Tanyau.	to squeeze through a straining cloth.
Taroh hati.	to like: to take a fancy to:
Ta'singketa or *ta'saketa.*	non-agreement: friction between parties: not getting on together: *mĕnghilangkan pĕrsingketaan* to get rid of causes of friction (W. *singketa* 'legal proceedings.')
Tawar lebir.	(*mĕlebir, mĕnggĕlebir*) absolutely tasteless, insipid.
Tĕbas dulu.	(idiomatic) to be first in the field: to forestall: to cut the ground from under a person's feet.
Tĕkak.	palate: taste: space between palate and tongue: *tĕkak haus, tĕkak kĕring* a dry throat from want of a drink; *tĕkak aku ta' sĕdap* not palatable, not to my taste (of food); *kĕmbang rasa tĕkak* to feel disgust at any article of food or a disinclination to eat; *ta' sĕdap tĕkak* to be off one's food, no appetite.
Tĕlap.	a dose of medicine already made up in a paper wrapper (W. *tiap.*)
Tĕmanggu.	a small wedge like portion of the stem of a *kolek*.
Tĕmbong or *bĕrtĕmbong.*	to meet: to run into one another of persons paths etc. coming from different directions. (W. to obstruct the passage of.)
Tĕnggan.	furrowed, lined, creased, marked, seamed: *leher bĕrtĕnggan* a furrowed neck due to a tight collar fat etc.: *kĕrja bĕrtĕnggan* regulated work *i.e.* not incessant (W. 'rolls of fat.')
Tĕpong gomak.	a sweetmeat made of *kachang hijau* rice flour, *santan* and sugar.
Tĕpong pĕlita.	a sweetmeat like blancmange wrapped in a small leaf-boat.
Tĕpong torak.	a sweetmeat consisting of a plain steamed roll of rice flour, santan and sugar.
Tĕrang bulan.	Moonshine.
Tĕrang tanah.	early dawn as soon as it is light. (Sh. dawn.)

Tĕrborak.	opened: loosened: (W. *borak* inadhesive: loose of tobacco. Cf. *orak*.
Tĕrĕjal.	in gusts: gusty of wind. (W. the flapping of a kite.)
Tĕrlerek.	to be run over by a wheel (W. *lerek* boring through.)
Tĕtarek.	an accordion, (from *tarek* to pull.)
Tĕtapa.	a dish of thin slices of pineapple sprinkled with sugar laid on one another and kept cool.
Tĕtengkat, papan tengkat.	a standing book or other shelf: from *tengkat* a floor a level.
Tĕtua.	black spots on the skin like freckles.
Tib. (Ar.)	a volume of calculations for arriving at a lucky date for a marriage etc.
Timpal.	a tangled heap, a disorderly mass: (W. *kĕtimpal* a disorderly tangled mass.) *Bĕrtimpal-timpal pokok kayu tida' bĕrsusun* a disorderly mass of trees not in rows; *bĕrkĕtimpal* all of a heap; *dawai bĕrtimpal-timpal dalam peti* a confused heap of wire in a box. *rumah bĕrtimpal* houses crowded together.
Tinteng (mĕnyinting).	to ring a coin (W. to purify by selection).
Togong.	stumpy: squat: uncouth and ill proportioned of a body.
Tokong.	short haired: (as a Siamese woman) bobbed of hair: (W. shaving of a woman's head either in disease or as a mark of disgrace or (Win.) for mourning.)
Tolu bolu.	a fool: a stupid person. (W. *tolo* impulsiveness and inconstancy.)
Tombong siput.	the central knob in a bang of hair.
Tonggak.	to up end as a bottle when drinking: *kuat tonggak* a toper, a man who lifts his elbow: (W. to sweep powdery substances into the mouth with the hand.
Torak.	a rolling pin: *menorak* to roll out as dough in making bread.
Tuakan (pĕtua Penang).	to take the newness off: to mature: *tuakan kuali* to heat a new pan with sand in it to take off the newness (from *tua* old).

Tus.	to drip (‘a sound like that of a small pistol W.) *nasi di-tus* rice dried by allowing the moisture to drip away: *pĕngĕtus piring* a plate rack. (Sh. *tuskan* to drain exhaust of liquid.)
Tutoh.	to eat ravenously, to have sexual intercourse; (W. to lop branches off a tree) hence to set about: to strike. *Dia tutoh nasi sampai ta' mahu* he ate until he couldn't eat any more.
Umbut.	to pull out gently; to raise the line slightly in fishing.
Unda, bĕrunda-unda.	in tow: one behind another (related to *tunda* to tow.)
Undang aya.	drifting about, shifting, unsettled.
Usap.	to pass through or cover with incense smoke as a *dabus* blade before use, or a person in a faint in order to bring them to (W. *usap* plating.)
Usul or *usul pĕreksa.*	to probe a matter to the very bottom, careful enquiry.
Uwet.	the barb on a fish hook.

Note. W. = Wilkinson; Wn. = Winstedt; Sh. = Shellabear.

Miscellaneous Notes

Note on the invocation of Akuan.

The interesting account of the "Akuan or Spirit-Friends" by Zainul Abidin bin Ahmad in the Journal published in Nov. 1922 (pp. 378-384) has reminded me of a ceremonial "conjuring" which I was fortunate enough to witness in Kota Bahru, Kelantan, in October 1899.

Whilst there with W. W. Skeat I was invited to attend one of these ceremonies, designed to relieve a young man suffering from some chronic illness, apparently rheumatism.

I remember there was a certain air of secrecy observed in regard to the matter and we were asked not to let anyone know that we were asked to attend, or that we had witnessed the ceremony. This was I believe due to the fact that the ruling Sultan, and the religious authorities of the State regarded such performances with disfavour as being contrary to the teaching of the Mohamedan Religion.

On the night of the ceremony two young men came to our quarters about 8.30 p.m. to guide us to the house of the sick man. Each of these carried a beautifully made circular shield of wicker-work and was armed with a sword, not with a kris. (At that time nearly every adult male in Kota Bahru wore the kris as a matter of course). We were conducted by our guides without incident to the house, where some twelve or fifteen persons were assembled.

According to my notes, made some time after, the ceremony was called *main putri* and the "medium" *bomor.*

The sick man lay on the floor, his head and shoulders propped up with pillows. The *bomor* and his assistant sat behind him. The friends and our two selves sat on the floor round the side of the room which was lighted with torches.

When all was ready for the ceremony the room was very quiet. The assistant began to play very softly dreamy music on the three-stringed Malay viol. The *bomor* sat with eyes closed and soon began an incantation in a thin falsetto voice which sounded somehow to come from very far away. The only word I caught sounded like the name "Siva." This incantation lasted a long time, and was interrupted occasionally when the *bomor* threw incense on a small brazier, made as though to grasp the smoke in his hands and blow it from them about the room.

At length he became agitated, the music of the viol grew louder and louder, and finally the *bomor* got up, stood behind the sick man, rested his hands on the invalid's shoulders and began to shake his own head about with most extraordinary violence, so that I momentarily expected him to dislocate his neck. Meanwhile the assistant uttered little excited cries and drew frantic sounds from the viol. After this had gone on probably only for a minute or two, the *bomor* sank down on the floor to a sitting position and after a short pause recommenced his incantations, followed again after a considerable interval by another furious head-shaking like the first.

The second frenzy was made even more thrilling than the first in that the onlookers were provided with metal cooking pots, etc. on which they all beat rhythmically with small sticks, whilst the *bomor* was shaking. I think I remember adding to the noise myself with the help of a brass pot. When exhausted he again sank down. At last the *bomor* found that the sick man's mother had not very long before driven out of the house a dove which had flown in, and had not thrown it any rice. This information seemed to remove some hindrance to the successful termination of the seance; and after more incantation and I think yet more head-shakings the cause of the sickness, and finally the steps necessary to arrive at a cure, were announced.

The *bomor* talked with Skeat and myself afterwards and accepted a small present from us. He also offered to give us a sample of his powers if we cared to test them.

There was to be a fight between two well-known fighting bulls the next day, and we asked him to say which would prove the winner. This he did without I think any circumlocution and quite correctly.

F. F. LAIDLAW.

A note on the habits of the Pygmy Falcon.

Whilst I was at Kuala Aring in Kelantan in September 1899 I was interested to notice on more than one occasion a small party, 3 or 4 individuals I think, of the Pygmy Falcon (*Microhierax fringillarius*). These birds used to sit on the higher branches of a dead tree which stood in the middle of a small clearing in the forest close to the kampong. Their occupation seemed to consist chiefly in capturing butterflies and there was constantly a litter of wings on the ground about the foot of the tree. Amongst them were the wings of *Papilio delesserti,* an insect I did not at the time have means of identifying. It was however common at Kuala Aring, in fact abundant; and though I am writing from memory more than twenty years after making the observation I am quite sure of the fact. Unfortunately I did not make any further notes on the matter beyond that " I noticed the little falcons catching the common black and white butterfly " nor did I note any other species of butterfly or other insect hunted by them. In view of the interest now taken in the question of butterfly enemies and because *P. delesserti* has the appearance of being a species protected by resemblance to Danaids I think this observation worth recording; probably others can give fuller notes on the habits of this bird, and details of its captures.

F. F. LAIDLAW.

Some bird names in Kedah.

Although the majority of Malay names for the various birds that inhabit the Peninsula are well known and the birds themselves have been classified, there is still a certain lack of cohesion between the two classes of nomenclature, owing to the variable nature of the Malay name according to the locality.

The following list of bird names from Kedah may help to dispel some of the prevailing uncertainty.

BURONG TITIAU.	Wattled Lapwing, *Sarcogrammus indicus* (Bodd.) *atronuchalis,* Blyth. This Lapwing is often met with in twos and threes on swampy meadow land, where it is easily distinguished by its piercing note which is well imitated in its Malay name. It has red wattles round the eyes.
BURONG PALA.	Smaller Adjutant, *Leptoptilus javanicus* (Horsf.) elsewhere known as *burong babi.* The Adjutant is met with in small colonies along the coast where it is rather difficult of near approach as it stands sentinel on the muddy reaches of the sea beach. It is also frequently seen circling lazily inland along the coastal stretch but always at a good height. The Adjutant is easily tamed and kept as a pet but is rather a foul bird and a voracious feeder. Its flesh is sometimes eaten by Malays on account of its supposed efficacy as a preventive against small intestinal worms (*biar-biar*).
BURONG KUAR.	Night heron, *Nyctocorax n. nycticorax* (Linn.). The night heron is usually met with flitting about the rivers at dusk, but at certain seasons I have seen flocks of as many as thirty birds flying around over particular stretches of the Sungai Sala during the daytime.
BURONG LEMBU.	The Giant Grey Heron, *Ardea sumatrana* Raffles, is a beautiful tall coastal wader with grey plumage and silky neck-feathers. It is found amongst the large boulders of the Sĕtul Coast; its name being due to its deep note which is not unlike the lowing of cattle.
BURONG KERIA.	The Burmese Crane, *Antigone a. sharpii* (Blanf.) is found as far south as Kuala Bara in Setul but I have not actually met with it in Kedah territory.

BURONG GUTGUT. The Crow-Pheasant, *Centropus sinensis* (Steph.) known elsewhere as *burong bubut,* is very common and can frequently be seen perched on the outside of a bush where its particoloured plumage consisting of a crow-black body and pheasant-brown wings makes it very noticeable. The Malay name is in imitation of its peculiar cry which appears to be uttered near the ground and carries a long distance like the honk of the *ayam-ayam* or water cock, which is repeated three or four times slowly and then as many very rapidly and sounds like an old man with a very bad cough. [The Kedah race is *C. s. bubutus* (Horsf.)].

BURONG RUAK-RUAK OR BURONG WAK-WAK. The White-breasted Water-hen, *Amaurornis phoenicura* (Forst.) *chinensis* (Bodd.), is a dainty little wader with a white waistcoat and drab coat. It steps very quickly and deftly amongst the stems of the nipah palms or other vegetation growing on the muddy river banks. At certain seasons (possibly breeding) it is decoyed by Malays who lure it with a call (*panggil ruak-ruak*) until it enmeshes itself in nets spread for the purpose. The birds are eaten, as they are difficult to keep in captivity owing to their timidity and restlessness: they can escape through an inconceivably small mesh of wire due to their intense eagerness to be free. The Malays aver that anyone finding and becoming the possessor of the nest of a *ruak-ruak* will obtain the magic gift of invisibility at will (*alimun*) ; so seldom is the nest found.

BURONG TAMPONG BAJU. Gray's pond heron, *Ardeola grayii* (Sykes), is sometimes called *burong puchong* but this term is also applied to several other birds. The pond heron or paddy bird obtains its Malay name from its patch of dark body feathers and white wings which gives it the appearance of a patch-work coat.

BURONG PUCHONG. The little Green Heron, *Butorides striatus* (Linn.) *javanicus* (Horsf.), is very common along all the rivers where it finds a living along the mud banks. He is a fearless bird and will often sit motionless on a stump and permit of quite close approach in a canoe before flying off along the next reach of the river.

LANG HINDEK. One of the Harriers, a species of *Circus,* is often seen flying very low over stretches of open land just skimming the tops of the padi or rough growth and working the ground in sections like the hunter that he is. During the season snipe rise from his path and wheel away in fear but I have never noticed him stoop to one.

SEWAH TIKUS. The Black-winged Kite, *Elanus c. coerulus* (Desf.) is a beautiful black and white bird with eyes of a wonderful coral red which hovers in the sky for some seconds with a peculiar quivering motion of its wings before dropping down some distance and repeating the motion and then sailing off or perhaps stooping to its prey.

SEWAH BURONG. The Sparrow hawk, (*Accipiter sp.*), is swift and deadly and many an unfortunate sparrow falls a prey to his arrow-like rush. The proximity of human beings is of no avail to his victims whom he will often pursue into a house.

BURONG PANGLING. The Purple Coot, *Porphyrio calvus* (Vieill.) *edwardsi* Elliott, is a very pretty wader with long red shanks and a grayish head with a flat red and orange comb. The coot lives in the deeper swamps where it can be approached by wading or in light draught dugouts, but when shot and wounded it dives and seizes the roots of sedge in its beak; it is then extremely difficult to find and retrieve.

BURONG BELABAS. The Cotton Teal, *Nettopus coromandelianus* (Gm.), is found in very small numbers on the meres either in pairs or small flocks of half a dozen birds. It appears to be less of a migrant than its congener the *bĕlibis* or Whistling Teal.

CHAK RAYA. The Weaver-bird, *Ploceus philippinus* (Linn.) *infortunatus* Hart., known elsewhere as *burong tĕmpua*, is very common and its bottle-shaped nest may be seen hanging conspicuously on trees. The fledgling Weaver-bird if taken nest and all and reared by hand becomes very tame and evinces little disposition to fly away when fully grown and kept without a cage.

CHIAK TANAH. The Malayan Pipit, *Anthus richardi* Vieill. *malayensis* Eyton, is common on all open ground and lawns, in appearance much like a sparrow he is easily distinguished by his very upright bearing and peculiar short runs.

CHAK TINTING. The Rufous Fantail Warbler, *Cisticola juncidis* Rafin. *cursitans* (Franklin), known in Malacca as *burong laki padi*, is a delicate little bird with the coloration and appearance of an immature sparrow. It hovers over fields of grass or grain

	flying with a jerky motion and at times emitting a rapping sound with its wings, hence its Kedah name.
BURONG BALAI.	The Thick-billed Shrike, *Lanius tigrinus* Drap. and *Lanius* spp. are butcher-birds which according to Malays in the 11th month work themselves up into a great state of excitement whistling and rolling about as if possessed. This may be due to the influence of a migratory species of shrike which arrives about that time.
TAHAN TUAR PA' AWANG.	Abbott's Babbler, *Malacocincla abbotti* Blyth, is a bird that is seldom caught sight of but its note is well known and the Malay name is an amusing attempt at rendering it. The reply usually being *Tahan tuar kak* on a slightly lower key.
BURONG SANOK.	The Large Green-billed Malkoha, *Rhopodytes tristis* (Less.), elsewhere known as *burong chĕnok*, is common in the scrub on the banks of streams where it hops about unconcernedly being conspicuous by its large tail. The form occurring in Kedah is *R. t. longi caudatus* (Blyth.).
PUYOH OR PUYOH PADANG.	The Blue-breasted Quail, *Excalfactoria chinensis* (Linn.), elsewhere known as *burong pikau*, is met with in the grass lands usually in pairs and provides good sport for the village children who often run it down when dazed after a series of short flights.
PUYOH RIMBA.	The Bustard Quail, *Turnix pugnax* (Temm.) is often kept for its fighting qualities.

Arctic Latah.

In the previous issue of this Journal (page 254) Mr. C. Boden Kloss considers the mental disturbance described by Peary among the American Esquimaux as akin to *amok* rather than to *latah*. But an "arctic hysteria" also exists (in Siberia) which appears to resemble *latah* very closely.

Haddon(1) says that it is the same as the *latah* described by Swettenham(2). It is no rarity. In connection with the Samoyeds in Northern Siberia he speaks of the "arctic hysteria which is so widespread among the Yukaghir and Lamut women and to a less extent among the Chukchee, the Russianised and even the Russian women."

Details are given in "Aboriginal Siberia," by Miss M. A. Czaplicka. A reviewer(3) summarises her account as follows:—"Persons suddenly attacked by this mysterious malady may break out into imprecations or physical violence, or they may mimic every word and gesture of the person with whom they are. A sudden start may set a native regiment mimicking the orders and gestures of their Russian commander, to his unspeakable indignation. This is strangely like the mental affliction known as Lata, which has been described by more than one writer on the Malays."

The abnormal mental phenomena among such North Siberian peoples as the Yakuts(4) are notably similar to those among Malays and still more similar to those among the Dayak peoples. The *pawang* and the *manang* appear to be essentially similar to the *shaman* of Central Asia, as Archdeacon Perham pointed out in this Journal in 1887(5).

The outbursts of bad language for which the startled *latah* subject is famous are of course not peculiar to him, nor are they likely to throw light on his condition. Certainly parallels can be adduced from more or less kindred races. The spirits which speak through the Yakut *shaman* do so sometimes with gratuitous indelicacy(6), and an old Batak once told me that the spirit of a dead person sometimes enters into a woman, making her talk obscenely, for which no one blames her any more than they would blame a madman and the same thing happens among other races during possession by a spirit(7). But it is common among the insane anywhere and it is also familiar among perfectly normal people of any race. It is a commonplace with any dentist who uses nitrous oxide, and may occur to the most respectable people in that condition between sleeping and waking which is so curiously distinct from both these states(8). The explanation is of a general nature, as indicated by Dr. Galloway in his discussion of the Psychology of Latah(9), not peculiar to this affection or locality.

REFERENCES.

(1) *Magic and Fetichism,* 1906, p. 56.

(2) *Malay Sketches,* 1896, pp. 65-77.

(3) *Times Literary Supplement,* 18th March, 1915, p. 90.

(4) *E.g., Jour. Roy. Anthr. Inst.* XXXI, 1901, pp. 65-108.

(5) Reproduced by Ling Roth, *Sarawak and British North Borneo,* 1896, I, 282.

(6) *J. R. A. I.,* XXXI, 103.

(7) *E.g.,* Telegu: E. Thurston, *Notes on Southern India,* Madras, 1906, p. 267.

(8) The following example is perhaps worth quoting. It was given by Dr. T. B. Hyslop, Physician Superintendent to the Royal Hospitals of Bridewell and Bethlehem, in a lecture reported in the Press in April 1910. "I went to the room of one of my colleagues and found him peacefully asleep with one toe out of bed. By way of experiment, I applied a little water to the toe but that was not sufficient to arouse his sub-consciousness.

Then with the aid of another colleague, I obtained some liquid air, which froze anything solid, and sprayed it upon the toe, and the language of my friend, who was still without consciousness, was most marvellous. It was very hard indeed to imagine that he had such a vocabulary and I am perfectly sure he did not know it himself."

(9) *Journ. Str. Br. Roy. Asiat. Soc.*, 1922, No. 85, pp. 145-146.

J. O'MAY.

Three Peninsular Charms.

(1) To avert strife.

Bĕsi pĕnundok, bĕsi gĕmira!
Tanam di-buku buloh,
Mantĕri tundok, raja tĕrtawa.
Aku mĕmakai do‘a sangga bunoh,
Lagi jauh, merah ĕngkau mĕmandang aku!
Sampai dĕkat, puchat ĕngkau mĕmandang aku!
Naga bĕrchula di-bĕlakang aku!
Harimau garang di-hadapan aku!
Bĕrkat aku mĕmakai do‘a sangga bunoh, sangga mara di-hadapan aku.

Iron that makes foemen bow down, iron of wrath!
Plant it in a joint of bamboo,
The Minister bows down and the King laughs.
I use a prayer to avert violent death.
From afar, let your countenance be ruddy in regarding me!
When near, let it be pale!
A horned dragon is behind me!
A ravening tiger before me!
In virtue of my using a prayer to avert death and danger before me.

(2) To shut the mouths of enemies.

Ilahumma! jagat buta! buana tuli! bumi bisu bongkang! Kantup tĕrkunchi hawa nafsu ĕngkau.

Oh God! let the world be blind, the universe deaf, the earth stretched out dumb! Closed and locked be thy desire!

(3) To catch a crocodile.

A's-salam alaikum
† *Sidang tatap* † *yang di-tĕlok!*
† *Sidang salleh* † *yang di-tanjong!*
† *Sidang ranting* † *yang di-tali harus!*
Bilalang ayer datang dari ayer
Datang dari padang Harman (هرمن) *!*
Titah Jibra'il,
"Aku hĕndak mĕmohon rayat tantĕra Nabi Sulaiman."
† *Jambul, jambul rang* (رڠ) †
Lagi dahulu Tĕmĕnggong Sultan,
Ini sĕkarang Sĕnanggong (سڠكوڠ) *Sultan!*
Sambut kiriman adek ĕngkau,
Dadeh Fatimah, nasi kunyet panggang kuaran!
Kalau ĕngkau ta' sambut,
Di-sumpah dek adek ĕngkau!
Mati mampat! Mati mampai!
Ĕngkau simpan baik-baik,
Taroh kĕmas-kĕmas tali buai adek ĕngkau!
Putus, aku ta' chakap mĕngganti-nya;
Hilang, aku ta' chakap mĕnchari-nya.
Ĕngkau bawa ka-hulu, patah ekor ĕngkau!
Bawa ka-hilir, patah nyonyong (ڽوڽڠ) *ĕngkau!*
Ĕngkau pĕrgi ka-lubok dalam, di-gigit buntal gĕdang!
Ĕngkau pĕrgi ka-tĕbing tinggi, di-hĕmpap tĕbing runtoh!
Ĕngkau ka-darat di-hĕmpap (هڤڤ) *punggor bĕrdaun!*
Ĕngkau ka-ayer, ta' dapat minum,
Kalau ta' ambil kiriman adek ĕngkau.

This, which is full of corrupt phrases, appears to be a charm for catching a crocodile.

The locality from which these charms come is unknown. Nor have I had opportunity to consult a Malay *pawang* as to the possible meaning of certain phrases and lines.

R. O. WINSTEDT.

Reviews.

The Census report of British North Borneo.

The report on the 1921 Census of British North Borneo forms a volume of 125 pages and deals thoroughly and minutely not only with the numbers of the inhabitants but with their race, religion, occupation, civil condition and all the other complications of a modern census. The report which follows the form of that on the 1911 Census of Ceylon represents a great advance on any former census report of B. N. Borneo.

Between 1911 and 1921 the population increased by 23.8 per cent and this comparatively low rate of increase for a country mainly dependent on immigration for rapid increase of population is explained by the Great War which retarded development and by the havoc caused by the influenza epidemic of 1918. It may be noted that during the same period the population of British Malaya increased by 25.6 per cent.

Of the total population of 257,344, nearly 80 per cent are natives of Borneo, and the Chinese, who exceed 37,000, are the only foreign race present in large numbers.

As was the case in British Malaya, the rate of increase of Chinese females has been far higher than that of the males, 120 per cent as compared with 28 per cent, and the author of the report notes this as one of the most hopeful indications of the census. Hakkas and Cantonese comprise three quarters of the Chinese population and intermarriage with Dusun women is common.

There are 415 Europeans including 106 females in the State and here again the fallacy of the belief that there are more Scotsmen than Englishmen in the East is demonstrated, there being 4 Englishmen to 1 Scotsman.

The chapters on history and the native races are full of interest apart from their statistical value. The author notes that with the construction of roads and bridle paths the use of Malay as a common language is increasing. "The variety of languages and dialects within the compass of this small country will always be an obstacle until a common form of speech is more universal."

No use has been made of the information collected as to ages except to divide the population into adults and children, a restraint which is undoubtedly wise in view of the inaccuracy of the information collected under this head in Eastern Censuses. As regards education, the census returns are somewhat depressing. Only 15 children in 1,000 are attending school and of the total population 94 per cent of the males and 99 per cent of the females are illiterate. The author is treading on dangerous ground when he claims the institution of an excise duty on native fermented liquors as a method of indirect education as it suggests the possibility of doing without the liquor to avoid the tax. What, one wonders, is the lesson taught by the Income Tax?

The author is to be congratulated on the manner in which statistics are blended with description and general information, and the report will be read with interest by many who have no first-hand knowledge of the State. One cannot but regret the modesty which has suppressed the author's name.

J. E. N.

Sarawak (Singapore, 1922, pp. 1-67).

By H. H. The Ranee of Sarawak.

Among the many interesting publications for which we have to thank the Malaya-Borneo Exhibition of 1922, few are more attractive than "Sarawak," written for that occasion by H. H. the Ranee of Sarawak. A second edition is to be published in connection with the great Empire Exhibition of 1924, where Sarawak will have its own Pavilion.

A strip of territory the size of England, bordering the north-west Coast of the great island of Borneo, has formed the theme during the last eighty years of many a tale of daring and romance. Piracy, head-hunters, orang-utans and such-like wonders of the jungle are subjects that thrill every adventure-loving boy. The story of how James Brooke, an Englishman, became Rajah of Sarawak, how he and his two successors put down piracy and head-hunting, how with a handful of Englishmen, ruling over a variety of nationalities totalling some half a million people, they built up a prosperous and independent State, is surely one which must ever delight and inspire our fellow-countrymen. In vivid pen-pictures, the Ranee gives just those incidents which help us to visualize without effort the whole history of the State. In her preface the Ranee begins, "Facts to my mind are insufferable and dates disagreeable........I love Sarawak." The two sentiments admirably express the dominating note of the whole work. The Ranee's love for Sarawak, her admiration for the work of the Rajahs, their policy and success, her sympathy and deep-seated affection for the people of her adopted country, are patent, though by no means obtrusive, in every line. Facts too she gives, but fortunately her dislike of them spares us anything approaching a wearying catalogue of incidents.

The Ranee takes us lightly from page to page in the history of Sarawak under the three Brookes.

James Brooke, the first Rajah, born in 1803, arrived in Singapore in 1838. Three years later the Sultan of Brunei formally ceded to him some 7,000 square miles of territory and recognized him as Rajah of Sarawak. Then followed strenuous and anxious days: one long uphill fight against immense odds, but always noteworthy for the support given to him throughout by an ever-increasing band of loyal subjects. Battles with pirates in North Borneo, the taking of Labuan and the appointment of Sir James Brooke as Governor, early troubles with Brunei, all make interesting reading to those who would know something of the early political history of those stormy Bornean States now living so prosperously and so peacefully under British protection.

The first Power to recognize Sarawak was the U.S.A. in 1850; but it was only in 1864 that Great Britain did so, and not until 1888 that a Treaty was signed under which the Rajah and his successors were recognized as the lawful Rulers of an independent State under the protection of Great Britain, who at the same time guaranteed immunity from interference in the internal administration of the country.

Sir James Brooke died in 1868 and was succeeded by his nephew Charles Brooke—a remarkable personality whose connection with Sarawak spread over a period of 75 years. As a midshipman in the Navy he came out with Keppel to Sarawak in 1842; he retired from the Navy ten years later and joined the service of his uncle. A strenuous ten years among the Dayaks followed before he went home again.

The first Rajah's health prevented him going out again to Sarawak, so the Government of the Country devolved upon the shoulders of his nephew, who carried on the policy of his uncle from 1863 until the day of his death in 1917. The abolition of slavery was one of his earliest accomplishments; the gradual suppression of head-hunting followed. Western ideas of progress crept in: roads and wharves were made; a railway commenced; a wireless installation establishing communication with the principal outstations was set up. "Development" was encouraged; thus Chinese were brought in to plant rice, the inevitable rubber estates came into being; coal, oil and gold were worked. But in granting concessions to any company for the development of the natural resources of the country, the key-note or guiding principle of the first Rajah's policy was never overlooked. The interests of the natives, the real owners of the country, came first. The introduction of foreign capital or the alienation of land was, and is to this day, encouraged only for the purpose of increasing the prosperity of the country and its people. A loyal and contented population is evidence of the success of this policy.

Sarawak is a country of queer contrasts: nomad tribes in the interior still roam the jungles, dependent on their blow-pipe and spear for their livelihood; over their heads one wireless station tells another the probable starters for the Derby or the latest price of rubber. In an up-to-date Museum abstruse questions from various scientific institutions in Europe and America, concerning the natural history and ethnology of Borneo, are dealt with by a scientist of high repute. Round the exhibition galleries of the same Museum wander small parties of the most attractive "savages" in the world—simple children of the jungle, well-mannered, just Nature's gentlemen, gazing with delight at the stuffed birds etc., which they know so well in life.

The Ranee brings her book up to date with an account of the present Rajah's life in Sarawak, now covering some 26 years. She tells of the early expeditions made while he was Rajah Muda during his service at different outstations, of the disastrous expedition against the Ulu Ai Dayaks in 1902, when 2,000 of the Rajah Muda's followers died of cholera. Then in contrast follows a vivid description of his installation as Rajah in 1918—a simple, but impressive ceremony in picturesque setting, with a blend of Oriental and barbaric splendour to capture the imagination.

"The walls and joists blazed with various flags and emblems, and the narrow twisted pathway was carpeted with crimson cloth. From the entrance to the dais it was lined on either side by Dayak warriors shoulder to shoulder, their naked bodies as motionless as images in bronze. Above the dais was a golden canopy and upon it two large decorated chairs. As we took our seats the full beauty of this scene caught in one's throat. Out of the dim lighting of the Court House the gorgeous native dresses, the uniforms, and the white feathers of the Dayaks stood out, revealing here a Malay Chief, here some Haji fresh from Mecca, a Dayak Chief with a mighty spear between his hands—and far at the back some Chinese with paper flowers in their button-holes."

J. C. M.

Malaya: The Straits Settlements and the Federated and Unfederated Malay States.

Edited by R. O. WINSTEDT, *M.A., D.Litt. (Oxon.) 1923:*
(London. Constable & Co.) 8vo: pp. I-XII, 1-283:
ill.: map: bibl. 12/- nett.

Within comparatively recent years two outstanding books have been published relating to the Malay Peninsula. One was Sir Frank Swettenham's *British Malaya,* published in 1907 and the other *The Malay Peninsula,* by Arnold Wright and Thomas J. Reid, published in 1912. Both these volumes possess many merits and will continue to occupy an honoured place among books on this part of the world. As regards authorship and treatment of subject, however, they are on a different plane from the new book published under the editorship of Dr. Winstedt. The former may be cited as individual productions and as such the treatment of subject is somewhat general in character. The latter, however, has the advantage of having as contributors a number of men who have not only spent many years in the country, but whose specialized knowledge makes it a combination of authority and interest. In many respects the work is encyclopaedic in character and is certain therefore to meet most needs of the student enquirer. This does not mean to imply that the various subjects have been unduly abbreviated or condensed: each aspect of Malaya has received treatment adequate to the general purpose which the editor has in view.

Some advanced students of things Malayan may be disappointed because a number of the chapters have not been extended further: they may also feel inclined to question a few of the statements expressed in the book. In the first place, however, the editor has obviously taken as a model the very successful "Provincial Geographies of India" Series. In the second, there is little to be gained by stressing points which are too controversial to be adequately dealt with in a book of this scope.

Here we have the story of a country that is teeming with interest for the ethnologist, the anthropologist, the naturalist, and those who would study empire growth and administration. That the book will have a ready sale there can be little doubt and advantage might be taken when a second edition is called for to correct printers' errors that have crept in here and there.

Of the twenty-seven chapters that comprise the book sixteen have been written by Dr. Winstedt. As might be expected by those acquainted with his earlier writings these chapters deal for the most part with the history, language and literature of the Malays; their superstitions, customs and religion, their arts and crafts. Mr. J. B. Scrivenor contributes interesting chapters on the physical features and scenery of the country—its climate, geology and minerals. In addition to his chapter on flora and forests Dr. F. W. Foxworthy supplies an appendix in which twenty-four of the timbers of the country are listed and described. The chapter on the fauna of British Malaya should be appreciated: certainly the subject has been brought within small compass, but Mr. H. C. Robinson and his anonymous colleague have made excellent use of the space at their disposal. Perhaps it would not be out of place to say that this chapter deserves a few more illustrations: we have photographs of three mammals, the elephant, the two-horned rhinoceros and the Malay gaur (*sĕladang, Malay*) : but none of the birds, reptiles or amphibians are illustrated.

The latter half of the book describes administration and finance, industries, trade and commerce, mining, agriculture, sea-fisheries and communications. Under each of these heads is gathered a great amount of statistical and other information that should prove of great value to all who would learn of the country's resources and commercial possibilities. The volume concludes with very interesting biographical sketches of Malaya's celebrities.

The book is illustrated by ninety-one photographs and contains a general map of the Malay Peninsula. There are in addition numerous charts and tables illustrating the extent, population and climatic conditions of the various states. Other tables show the progress of trade and commerce. The index and bibliography are full.

J. J.

The Singapore Naturalist. No. 2.

(Singapore: Methodist Publishing House, pp. 1-119, frontispiece. Price $2.00).

The second number of this journal appeared in April. It is pleasant to note that there seems no decrease in the enthusiasm which brought the Singapore Natural History Society into existance. This issue is half as large again as its predecessor; it records the election of twenty-four new members, making ninety in all; meetings and excursions have been more numerous than before; and after publishing two journals the Society has a balance to its credit.

The monthly meetings are made attractive by the exhibition of specimens of which some account is given and we are told something in this number of Singapore rats, Malayan Mouse-deer, the extraordinary Proboscis Monkey of Borneo, burrowing-snakes, House-geckoes and squirrels. The monthly excursions are generally made under the leadership of a member who is familiar with the district visited and appear to be popular.

The transaction are varied. Mr. W. H. R. Allen contributes a paper on "Protective Colouration and Mimicry in Insects": these are said to attain their, presumed, object by being distasteful, by looking distasteful, by looking inconspicuous and by looking terrifying.

Dr. Gilbert Brook in a contribution on "The Natural History of Shakespeare" quotes many passages which are as true as they are beautiful and shows that when writing of Natural History it is not always necessary to use the unattractive nomenclature (though that is desirable at times for the sake of accuracy) that Mr. G. H. Sworder employs in his useful "List of the Snakes of Singapore Island." Ninety-one species are dealt with, of which twenty-four are sea-snakes: of the remainder only three are dangerous—the Hamadryad, the Cobra and the Banded krait—though the bite of five others, the pit-vipers, produces painful and unpleasant symptoms.

Mr. V. C. H. Jarret records the presence in Singapore and Province Wellesley of an East African snail, *Achatina fulica,* which is likely to do considerable damage in vegetable gardens, if unchecked: happily, however, it has its uses as a food for ducks and poultry. A list, with comments, is given by Mr. P. Feddersen of some of the Orchids of Johore and Mr. Allen has a note on the great Bird-winged butterfly, *Ornithoptera brookeana.*

After butterflies perhaps birds are most popular with the amateur naturalist and the energetic Honorary Secretary, Mr. F. N. Chasen, in his "Introduction to the Birds of Singapore Island" which should interest many readers, has compiled a list of all the species which have been recorded. They make a total of 291, or nearly half as many as are known from the whole of the Federated Malay States. A number of those formerly met with have disappeared and others have become very rare, for species have been driven away or exterminated by the destruction of the forests necessary for their existance. This paper is a good argument for the preservation as " Nature Reserves " of some of the few patches of woodland still remaining.

Mr. C. J. Saunders writes of the " songs " of several local birds and Mr. H. C. Abraham tells of the capture of a Giant-spider by a wasp one-thirteenth its weight. The frontispiece is an illustration of these two animals.

Two papers as interesting as, perhaps, they seem out of place in a journal of pure Natural History are contributed by Messrs. I. H. Burkill and W. Dunman :—" The Historical Aspect of certain local Industries " and " A History of the Rubber Industry in Malaya."

Altogether a journal as catholic as attractive : the next number should be looked forward to with interest.

C.B.K.

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MALAYAN BLATTIDÆ.

PART II.

By R. HANITSCH, PH.D.

(With Plates XII and XIII.)

In a former number of this Society's Journal, I published a paper on "Malayan Blattidæ,"* which was mainly a compilation of the original descriptions of all species found within the Malayan sub-region which had come under my notice at the time, together with the descriptions of a number of new species.

The present pages are intended to be supplementary to the former paper and contain (1) several original descriptions, chiefly by Brunner von Wattenwyl, which had previously escaped me; (2) descriptions of a few new species published during the last eight years; (3) records of new localities when a species is recorded for the first time from one of the four great divisions of the Malayan sub-region, viz. the Malay Peninsula, Sumatra, Java or Borneo; (4) the descriptions of 23 new species chiefly from material which I have received since my retirement from Singapore from Major Moulton, late Director of the Raffles Museum; Mr. C. Boden Kloss, the present Director; Mr. H. C. Robinson, Director, F. M. S. Museums; Dr. Karny, of the Buitenzorg Museum; Dr. Eric Mjöberg, Curator of the Sarawak Museum; Professor C. F. Baker, of Manila, and the Rev. G. Dexter Allen. Finally, the collections of the Hope Department, University Museum, Oxford, where I have carried on this work, contained some unidentified material upon which I have ventured to base the descriptions of several new species. My sincerest thanks are due to the above-named gentlemen, also especially to Professor Poulton, F.R.S., who, as on former occasions, placed the rich collections of his department at my disposal and assisted me in every possible way.

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*" Malayan Blattidæ " in Journal, Straits Branch, Royal Asiatic Society, No. 69, pp. 17–178, pls. I.–VII. (1915).

Species which had already been fully dealt with in my former paper, have not been included in this, except in cases of records of new localities. But the appendix contains a list of all Malayan species described up to the present, with their geographical distribution and references both to this and the former paper. The lists of synonyms, given in full before, have not been repeated here.

The illustrations contained in the two coloured plates of this, as of the previous paper, were prepared by Mr. Valentine Knight, whilst he and I were still in Singapore, and I am much indebted to him for his artistic and careful work. Two of the text illustrations (Figs. 18 and 27) were drawn in Buitenzorg under the direction of Dr. Karny and appeared in my paper on the "Blattidæ of the Buitenzorg Museum" (*Treubia*, Vol. III., pp. 197–221 (1923)), and I have to thank Dr. Dammerman, Director of that institution, for kindly allowing me to reproduce them here. The other text illustrations are my own attempts.

The types of all species described here as new are preserved in the Oxford University Museum

MALAYAN BLATTIDÆ.

Sub-family 1. ECTOBINAE.

Theganopteryx apicigera Walker. (Plate XII, fig. 1.)

Theganopteryx apicigera Hanitsch J., S B., R A S., No 69, p 26 (1915)

Previously recorded from Borneo, Sumatra and Java. Since taken on the Malay Peninsula, viz: at Ginting Bidei, Selangor (C. B. Kloss, April 1917), at Kota Tinggi, Johore (V. Knight, Aug. 1917), and in Gilstead Road, Singapore (V. Knight, October 1918) Readily recognized by the black tips to its flavo-testaceous tegmina.

The specimen figured is that from Kota Tinggi.

Hemithyrsocera lateralis Walker. (Plate XII, fig. 2.)

Hemithyrsocera lateralis Hanitsch, J., S B., R A S., No 69, p 28 (1915).

To the localities previously recorded can now be added Rawang, Selangor (C. B. Kloss), and Gunong Kledang, Perak, where I took it in November 1916. The latter specimen is the one figured.

Hemithyrsocera palliata Fabricius. (Plate XII, fig. 3.)

Hemithyrsocera palliata Hanitsch. J., S B., R.A.S., No. 69, p. 28 (1915).

So far recorded from India, China, Indo-China, Lower Siam and Sumatra only.—However, the Oxford Museum contains two specimens from Selangor (H. C. Pratt, 1907), and one from Ceylon (E. E. Green). I took it on Bukit Kutu, Selangor, April 1915, and at Gurun, Kedah, December 1915.

The specimen figured is that from Bukit Kutu.

Hemithyrsocera ridleyi Shelford.

Hemithyrsocera ridleyi Shelf Trans. Ent Soc, London, 1912, p. 660, pl. LXXX, fig. 15

Shelford: ♂. Flavo-testaceous. Antennæ setaceous, testaceous; eyes widely separated on vertex of head. Pronotum widely trapezoidal, margins hyaline. Tegmina and wings exceeding the apex of the abdomen. Tegmina with 19 costals, radial vein bifurcate from the middle, anterior ulnar bifurcate, 7 discoidal sectors. Wings hyaline, mediastinal vein 4-ramose, 16 costals slightly incrassated, radial bifurcate from the middle, medio-discal area about 2½ times broader than medio-ulnar, ulnar vein simple, discal area crossed by numerous transverse venules, triangular apical area moderate, distinct. Abdomen above banded with fuscous, no scent-gland visible, supra-anal lamina shortly triangular, apex sub-truncate. Subgenital lamina extremely asymmetrical, on the extreme left a blunt curved process, on the inner side of this another blunt process tufted with stiff brown hairs, the rounded apex of the lamina fimbriate, the left style small, situated to the right of the apex, the right style a large sinuose structure. In addition there appear under the supra-anal lamina a pair of bifurcate denticulate processes which apparently are not connected with the gonapophyses. Cerci 12-jointed, of moderate lengths, apex acuminate. Femora very strongly armed (front femora missing).

Total length 13 mm.; length of body 12 mm.; length of tegmina 12 mm.; pronotum 3 × 4 mm.

Hab: Singapore, Botanic Gardens (H. N. Ridley, 1908) (Oxford Museum, type).

The complicated nature of the secondary sexual apparatus of this species is highly remarkable.

Hemithyrsocera soror Brunner von Wattenwyl.

Hemithyrsocera soror Hanitsch. J., S B., R A S, No 69, p 29 (1915).

Previously recorded from Celebes and Java only. Since taken by N. Annandale on Taiping Hill, Perak, December 1915.

Anaplecta vittata n. sp.

♀. Head orange, antennæ black, filiform. Pronotum orange, its lateral margins hyaline. Tegmina black, with a broad white vitta across their middle; mediastinal field hyaline. Wings with the marginal field and apical area fuscous; apical area two-fifths of the total wing length, its basal margin obtusely

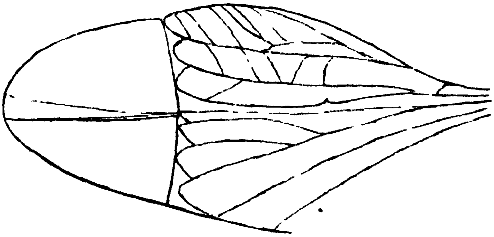

Fig 1. *Anaplecta vittata* n.sp. ♀
Left wing. × 10.

angled; six costal veins; medio-discal area crossed by five roughly equidistant venulæ, the distance between the 3rd and 4th being greatest; 1st axillary vein 3-ramose.

♀. Total length 5 mm; tegmina 4 mm.

Hab: Near Impounding Reservoir, Thomson Road, Singapore. Two examples ♀♀. (August 7th, 1922 and December 3rd, 1922). Type in the Oxford Museum.

The white vitta across its tegmina readily distinguishes it from the other Malayan species.

Sub-family 2. PHYLLODROMIINAE.

Pseudothyrsocera scutigera Walker.

Pseudothyrsocera scutigera Hanitsch J., S. B., R. A. S., No 69, p 34 (1915)

The Oxford Museum contains, besides the type, collected by Wallace in Sarawak, two specimens from Kuching, Sarawak, presented by R. Shelford, 1899–1900. I took it at the Semangko Pass, Malay Peninsula, 2,700′, March 1912, and on Gunong Kledang, Perak, 2646′, November 1916.

As the abdomen of the type is missing, I give the measurements of one of Shelford's specimens (♂) from Sarawak:

♂: Total length 12 mm.; body 9 mm.; pronotum 2·5 × 3 mm.; tegmina 9 mm.

The black mark on the pronotum is generally roughly hexagonal, the anterior angle being more acute than the posterior.

Ischnoptera cavernicola Shelford

Ischnoptera cavernicola Hanitsch J., S.B., R.A.S., No. 69, p. 38 (1915).

Shelford's description was based upon a single ♂, from a cave at Bidi, Sarawak. Two ♀♀ examples, from a cave at Jibong, Sarawak (J. C. Moulton, January 26th, 1912), which Dr. Eric Mjöberg has sent me, differ in size and colouring slightly from the type in the Oxford Museun, but these differences are probably merely sexual.

♀: Head black, mouth parts and antennæ testaceous. Pronotum orange, with a black margin all round, widest at the sides, narrowest in front. Tegmina testaceous. Legs proximally testaceous, distally darker.

♀: Total length 15 mm.; body 13·5 mm.; pronotum 3·5 × 4 mm.; tegmina 11·5 mm.

Ischnoptera indica Brunner von Wattenwyl.

Ischnoptera indica Brunner Nouv Syst. Blatt. p 130 (1865)
Ischnoptera indica Kirby Syn Cat Orth., Vol I, p 81 (1904)
Ischnoptera indica Shelf Gen Ins fasc 73, p 7 (1908)

Brunner: Fulvo-ferruginea. Capite magno. Pronoto latere deflexo. Alarum parte anticâ, præcipue campo inframedio, latâ. Venâ scapulari dichotomâ. ♂.

Long. ♂: corporis 15·5 mm.; pronoti 3·5 mm.; pron. transv. 5 mm.; elytrorum 15·5 mm.

Cette espèce tient milieu entre la précédente [i.e *I. himalayica* Brunner] et la suivante [i.e. *I. brasiliensis* Brunner]. Elle diffère de l'une et de l'autre par la largeur de la partie antérieure de l'aile et par sa nervation. La nervure scapulaire se bifurque au milieu, le rameau inférieur se bifurque encore deux fois, de sorte qu'il atteint le bord par 4 branches. La nervure inframédiane émet 5 rameaux vers le bord apical et 5 vers a nervure divisante. La première nervure axillaire se bifurque une première fois au premier tiers une seconde fois au milieu, et une troisième fois un peu plus oin. Le second rameau se bifurque de nouveau, de sorte que cette nervure arrive au bord par 5 branches.

Patrie: Malacca (Coll. Fieber).

Ischnoptera reversa Walker.

Ischnoptera reversa Hanitsch. J., S.B., R.A.S., No. 69, p. 37 (1915).

Hitherto known only from the type ♂, in the Oxford

Museum, taken by Wallace at Singapore.* I took a ♂ on Bukit Kutu, Selangor, 3457′, April 1915. Its measurements agree closely with those given by Shelford in his revised description (T.E.S., 1906, p. 489), viz :

♂ : Total length 19 mm. ; body 13 mm. ; pronotum 3·2 × 4·9 mm. ; tegmina 15 mm.

Phyllodromia abrupta n. sp.

♀. Head orange ; eyes black ; antennæ testaceous. Pronotum dull orange, with a broad lateral border of pale straw yellow. Tegmina greatly exceeding the body ; mediastinal area, and the anterior half, or more, of the marginal area, very pale straw yellow, abruptly succeeded by a light chestnut streak which follows the radial vein and then shades off into a transparent amber colour along the posterior margin ; 14 costals. Wings dark fuscous, 13 costals, ulnar vein bifurcate, triangular apical field present. Cerci very long.

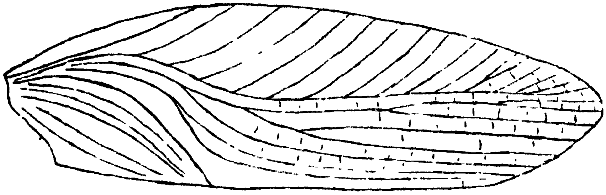

Fig. 2. *Phyllodromia abrupta* n.sp. ♀
Right tegmen × 7.

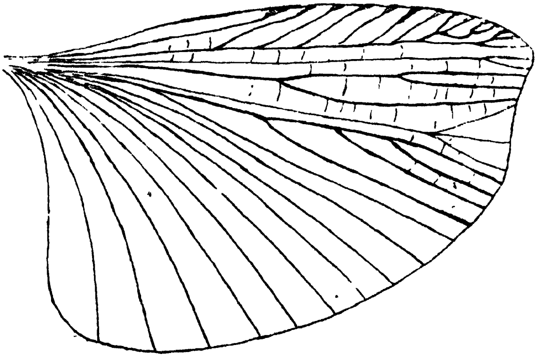

Fig. 3. *Phyllodromia abrupta* n.sp. ♀
Right wing. × 7.

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* The locality " N W. Borneo (Oxford Museum)," given in my former paper, was an error,

wings blackish; cinereous towards the tips. Length of the body 5 lines; of the wings 12 lines.

It has some resemblance to the genus *Epilampra.* Morty. In Mr. Saunders' collection.

The type, collected by Wallace on Morty Island (N.E of Gilolo), is in the Oxford Museum. Its sex cannot be determined, as the abdomen is missing. I took this species on three occasions within the Malayan region, viz:

1♂, Gunong Kledang, Perak, 2646′ (November 1916).

1♂, Penang Hill, 1500′-2423′ (May 1917).

1♂, Gunong Angsi, Negri Sembilan, 2000′-2790′ (April 1918).

The horse-shoe shaped marking on the pronotum, shining black upon orange, is very distinct in all three specimens, as in the type. Distinct is also the apical triangle of the wings, a fact not mentioned by Walker. The dimensions of the Penang specimen are:

♂: Total length 13 mm.; body 10·5 mm.; pronotum 3 × 4 mm.; tegmina 11 mm.

A resemblance to *Epilampra*, mentioned by Walker, is not obvious, not even superficially.

Phyllodromia castanea Brunner von Wattenwyl.

Phyllodromia castanea Brunner. Abh. Senck Ges., Vol. XXIV, p. 204, pl. XVI., fig. 7 (1898).
Phyllodromia castanea Kirby. Syn. Cat. Orth. Vol I., p. 93 (1904).
Phyllodromia castanea Shelf. Gen. Ins., fasc. 73, p. 13 (1908).

Brunner: Castanea. Vertex liber, cum fronte ferrugineus. Pronotum elongatum, lateribus pallide marginatis. Elytra campo marginali testaceo. Alæ parum infumatæ, vena ulnari 4-ramosa. Pedes cum abdomine ferruginei. ♂.

♂ Long. corp. 11 mm.; long. pron. 3 mm.; lat. pron. 3·3 mm.; long elytr. 10·5 mm.

Patria: Brunei in ins. Borneo (collectio mea).

Phyllodromia contingens Walker.

Phyllodromia contingens Hanitsch. J., S.B., R.A.S., No. 69, p. 45 (1915); Treubia, Vol. III., p. 198 (1923).

The Oxford Museum contains Walker's types of his *Blatta contingens*, ♀, from Sarawak, and of the synonymous *Blatta humeralis* ♂, from Singapore, both collected by Wallace; also specimens from Kuching, Sarawak, taken by Shelford.

I have recorded this species from Java and Krakatau (Dammerman, 1919 and 1920). See "Treubia" (l.c.).

Phyllodromia curvinervis Saussure and Zehntner.

Blatta curvinervis S. and Z., in Grandidier, Hist. Nat. Madag., Orth. Vol. I, p. 32 (1895).

Phyllodromia curvinervis Kirby. Syn. Cat. Orth., Vol. I., p. 91 (1904)

Phyllodromia curvinervis Shelf. Gen. Ins. fasc. 73, p 13 (1908).

Saussure and Zehntner: *Bl. lacrymulæ* simillima, subtus testacea. Antennæ brunneæ. Frons inter oculos nigra. Pronotum nigrum, marginibus lateralibus latius, anteriore anguste, flavis; posteriore angustissime rufescente; vitta media flava disci totâ longitudine perducta, biconstricta, antice angustata. Elytra rufo-castanea, apice pallida, margine costali fere toto pellucenti-testaceo, lineâ humerali fusciore. Alæ subhyalinæ, venis brunneis; campo anteriore angustissimo, venis rufis, apice coarctato; campo marginali fulvo-brunneo, subtus lutescente, haud opaco, venis costalibus crassis 13. Vena discoidalis ante medium furcata; *venæ media et ulnaris arcuatæ*, hæc angustissime biramosa; area intercalata sat longa, margine apicali arcuato, leviter prominulo, quâ de causâ sinus apicalis nullus. Rami venæ axillaris invicem propinqui; omnes anguste radiati. Coxæ basi, femora basi et apice, fusco-notata; tibiæ ad spinas fusco-punctatæ. Femora anteriora subtus margine anteriore totâ longitudine spinosa (spinis 12-13). Abdomen supra piceum, fusco-varium, subtus apice fusco-marmoratum. Cerci testacei, vel fusci. Lamina supra-analis grandis, plana, ♀ apice trapezino-rotundata, ♂ major, trigonalis; apice rotundata vel obtusa, laminam infragenitalem haud superans. Lamina infragenitalis rotundata, irregularis; stylo sinistro crasso vel crassissimo, dextro longo, gracillimo, acuto. Ultimum segmentum ventrale ♀ apice foveolatum, subincisum.

Longueur du corps ♂ 10 mm.; longeur du pronotum ♂ 3 mm.

Longueur de l'elytre 12·75 mm.; largeur du pronotum 3.5 mm.

Hab: Java.—Birmania.

Suivant M. Brunner de Wattenwyl, la veine ulnaire de l'aile serait seulement bifurquée; cela peut varier.

Cette espèce est remarquable par l'étroitesse du champ antérieur de ses ailes, rétréci au bout par le champ intercalé; et par les nervures longitudinales de ce champ, qui sont courbées en avant, à connexité tournée en arrière, avec l'extrémité et la base légèrement infléchies en sens inverse."

Phyllodromia diagrammatica Hanitsch.

Phyllodromia diagrammatica Hanitsch. Treubia, Vol. III., part 2, pp. 198–200, fig. 1 (1923).

♂. Head free. Vertex red; eyes, clypeus, labrum and mouth parts generally, black. Antennæ setaceous. Pronotum black, with a narrow white border all round; near its centre two white comma-like markings, each of which is enclosed in front by a white hook-like line. Tegmina black at the base, turning greyish-brown towards the tips, with all the veins chalk-white, clearly standing out against the dark background. Radial vein with 12 costal veins, the first eight simple, the 9th bifurcated, the 10th trifurcated, the 11th and 12th simple. Ulnar vein sending 7 branches towards the sutural margin, of which the 4th and 5th are bifurcated, the others simple. Anal area with 5 axillary veins. Wings transparent, with the anterior margin infuscated. Mediastinal vein simple, proximally fused with the radial vein. Radial vein bifurcated, with 3 or 4 anastomoses between the two branches; outer branch with 4 or 5 costals; inner branch with 10 to 12 costals which may arise singly, or multiramose, i.e. 3 to 5 branches from a common trunk. Costals all incrassated. Median vein simple or bifurcated. Ulnar vein sending 3 or 4 branches to the apex only, of which the last branch is bifurcated, the others simple; apex of ulnar vein bifurcated. Small apical field. First axillary vein 4-ramose. Front femora armed with about 3 stout spines, succeeded distally by a close-set row of minute piliform spines, the proximal portion of the front femora being almost free of spines.

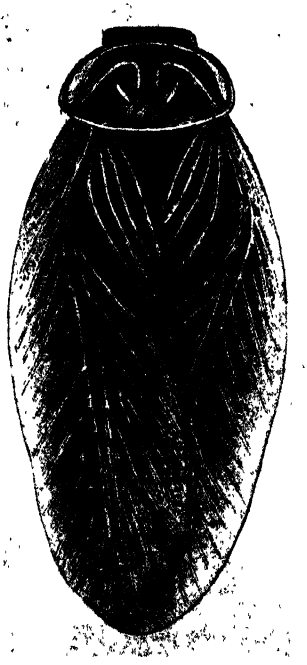

Fig. 6. *Phyllodromia diagrammatica* Hanitsch. ♂ × 7.

Total length 12 mm.; body 8·5 mm.; pronotum 2·5 × 3·7 mm.; tegmina 10 mm.

Hab : Two examples ♂♂ Kuala Lumpur, Selangor (C. Boden Kloss, January and February, 1918). Type in the Oxford Museum. —One example, ♂, Selitar, Singapore (F. Monteiro, February 1918).—One example, ♀, without locality label (Buitenzorg Museum).

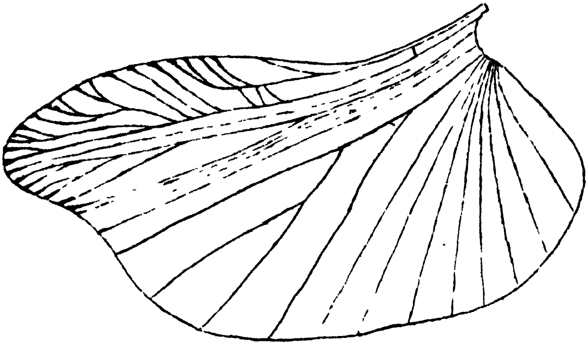

Fig. 7. *Phyllodromia diagrammatica* Hanitsch. ♂
Left wing. × 7.

In the specimen examined and figured, right and left wing differ in their venation. The first 4 costals of the left wing spring from the outer branch of the radial ; these are followed by 3 costals arising singly from the inner branch of the radial, then by 5 costals from a common trunk, and finally by 3 costals, also from one trunk. In the right wing we find 5 costals arising from the outer radial, followed by three groups of 4, again 4, and 2 costals respectively, springing in common trunks from the inner radial. Still more curious is that the median vein of the left wing is simple, that of the right wing

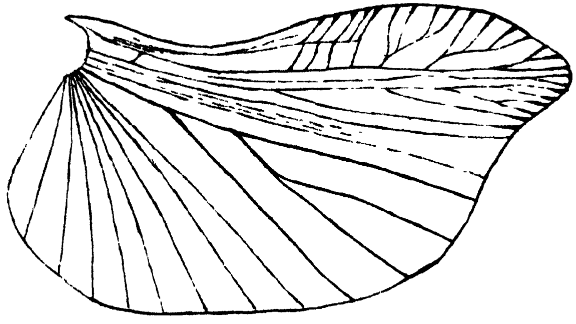

Fig. 8.* *Phyllodromia diagrammatica* Hanitsch. ♂
. Right wing. × 7.

bifurcated. Considering that e.g. a forked median vein is one of the characters of *Ellipsidion* Saussure (= *Apolyta* Brunner) to distinguish it from allied genera with simple veins, it shows with what caution such-like differences must be employed for generic distinction. Finally the ulnar vein of the left wing gives off 5 branches, of which the fourth is bifurcated, the others simple; the right ulnar has 4 branches of which the third is bifurcated, the others simple.

The armature of the front femora conforms with Shelford's type " B," in his " Preliminary Diagnoses of some new genera of Blattidæ "* where he proposes to split up *Phyllodromia* Serville into six genera. This, together with the ramose character of the ulnar vein of the wings and the only slight development of the apical triangle, would bring this species under the genus *Eoblatta* Shelford, of which *Blatta notulata* Stal is the type.

Phyllodromia hamifera Walker.

Phyllodromia hamifera Hanitsch. J., S.B., R.A.S., No. 69, p 43, pl. III., fig. 14 (1915).

Originally recorded from Sarawak. Since taken by myself on Pulo Rawi, Lower Siam, April 1911, and on Penang Hill, May 1917.

Phyllodromia laterifera Walker.

Phyllodromia laterifera Hanitsch. J., S.B., R.A.S., No. 69, p. 48 (1915).

Hitherto only known from Sarawak. The Oxford Museum contains, besides the type ♀, collected by Wallace, also a ♂, from Kuching (1900), presented by the Sarawak Museum.

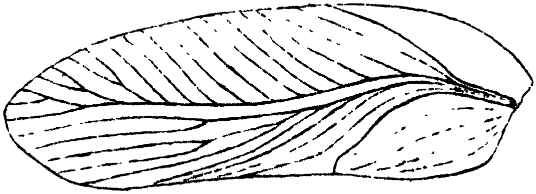

Fig. 9. *Phyllodromia laterifera* Walker. ♂
Left tegmen. × 5.

Since taken by Professor C. F. Baker on Singapore island, 1♂, and at Penang, 1♀, both in 1917.

Re-description of the species from the Singapore specimen:

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* Entom. Month. Mag. (2), Vol. XXII., pp. 154–156 (1911).

♂. Head testaceous, not covered by the pronotum. (Antennæ missing.) Pronotum circular to elliptical, its greatest width behind the middle; whitish transparent, with a few green markings; disk testaceous. Tegmina large and broad, not overlapping considerably, much exceeding the apex of the abdomen; whitish transparent, with some of the costals green; about 15 costal veins; ulnar vein sending 8 branches to the dividing vein. Wings without apical triangle ulnar vein sending 5 branches to the apex. Femora, especially the hind ones, weakly armed beneath. Arolia present. Supra-anal lamina (♂) narrow, transverse. Cerci long, 10-jointed, the apical joint green, the rest light testaceous. Two styles, both shifted to the left side, reddish.

♂: Total length 18·5 mm.; body 13 mm.; pronotum 4 × 5 mm; tegmina 15 mm.

Hab: Sarawak (Wallace); Singapore (C. F. Baker); Penang (C. F. Baker.)

This species has a curious superficial resemblance to *Panchlora nivea* L., from South America, due to its transparent white tegmina and the green infiltrations along some of the costals. Traces of green are also found along the border of the pronotum, on the distal end of the femora, in the last tarsal joints of the middle and hind legs, and in the apical joints of the cerci.

Phyllodromia latius vittata Brunner von Wattenwyl.

Phyllodromia latius vittata Hanitsch, J., S B, R.A.S, No. 69, p 42 (1915). Treubia, Vol. III, p 198 (1923)

This species had first been recorded from Buitenzorg, Java, where Dr. Karny found it again in 1920. Prof. C. F. Baker took it on Singapore island in 1917, and the Oxford Museum contains a specimen from Macassar, presented by Dr. Malcolm Burr.

Pronotum orange, with a large U-shaped mark, restricting the orange coloration to a narrow border in front and at the sides of the pronotum and to the space between the two limbs of the U. Tegmina dark fuscous to black, with a light outer border.

Phyllodromia luteo-marginata n.sp.

♂. Broad, somewhat convex. Head not covered by the pronotum, testaceous, vertex darker, eyes testaceous, close together, separated by only the thickness of the antennæ; antennæ filiform, testaceous, darker distally. Pronotum dark chestnut to black, laterally with a yellowish border, broader behind than in front. Tegmina transparent chestnut, with a yellowish border comprising the entire mediastinal area and not quite one-half of the radial area, fading away distally; 13 costal veins, the 10th subdivided into two, the 11th and 12th into four each; discoidal area with 5 longitudinal sectors. Wings with marginal area slightly yellowish, 10 costal veins, the 7th to 10th bifurcated; ulnar veins with 6 branches; no apical area.

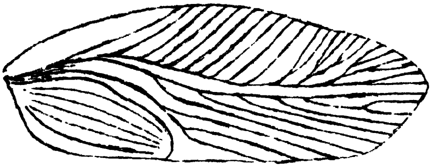

Fig. 10. *Phyllodromia luteo-marginata* n.sp. ♂ Right tegmen. × 4.

♂: Total length 18·5 mm.; body 14 mm.; pronotum 4·5 × 6 mm.; tegmina 15 mm.

Hab: Botanic Gardens, Singapore. One example, ♂. (H. N. Ridley, April–September 1906). Type in the Oxford Museum.

A ♀ example which I took at Gurun, Kedah, Malay Peninsula (December 1915) and which apparently belongs to the same species, measures:

♀: Total length 17 mm.; body 13·5 mm.; pronotum 4 × 5·5 mm.; tegmina 13·5 mm.

It agrees with the ♂ in all respects, except that its eyes are further apart, being separated by twice to three times the thickness of the antennæ.

Phyllodromia molesta Brunner von Wattenwyl.

Phyllodromia molesta Brunner. Abh. Senck. Ges. Vol. XXIV, p. 203, pl. XVI, fig 5 (1898).
Phyllodromia molesta Kirby. Syn Cat. Orth Vol. I., p. 92 (1904).
Phyllodromia molesta Shelf. Gen. Ins fasc. 73, p. 14 (1908).

Brunner: Picea. Vertex liber, cum fronte niger, lineâ transversâ testaceâ inter oculos ornatus. Pronotum rotundatum, nigrum, utrinque late testaceo-marginatum, disco rotundato delineato. Elytra picea, campo marginali testaceo. Alæ valde infumatæ, venâ ulnari triramosâ. Femora nigra. Tibiæ cum tarsis ferrugineæ. Abdomen nigrum. ♂ ♀.

	♂	♀
long. corp.	9·5 mm.	10·5 mm.
long. pron.	2·8 ,,	3·2 ,,
lat. pron.	4·0 ,,	4·5 ,,
long. elytr.	10·2 ,,	8·0 ,,

Patria: Palabuan in ins. Java (collectio mea).

Phyllodromia nigrocincta Chopard.

Phyllodromia nigrocincta Chopard. Mem. Asiat. Soc. Bengal, Vol. VI., p. 343, pl. XII., figs. 1-3 (1919).

Chopard : [Much abbreviated] " Espèce de taille moyenne, très allongée de forme, jaune testacé, à pronotum plus foncé bordé tout autour d'une assez large bande noire ; pattes et antennes concolores. Pubescence presque nulle.

Pronotum large, de couleur testacé roussâtre avec une bordure presque noire, irrégulière, très large sur les côtés, étroite en avant et en arrière ; surface déprimée, marquée d'une ponctuation très écartée, à pubescence rare ; bords finement rebordés, le bord antérieur très largement arrondi, bord postérieur sinué ; angles postérieurs arrondis.—Elytres très étroits, plus longs que l'abdomen, jaune testacé dans la moitié antérieure, transparents vers le bord interne ; bord antérieur convexe près de la base, presque droit, ensuite jusqu'à l'extrémité ; bord interne presque droit, apex arrondi. Veine discoïdale plus marquée que les autres, située presque au milieu de l'élytre, divisée vers sa moitié, le rameau inférieur deux fois redivisé, le tronçon basal et le rameau supérieur portant environ 18 branches assez régulières et un peu sinuées ; veine médiane bifurquée très près de la base et portant 5 à 6 rameaux parallèles entre eux, très allongés. . . . Champ anal étroit et allongé, présentant 6 nervures parallèles, à intervalles lisses.—Ailes très larges, transparentes sauf vers l'extrémité du bord antérieur qui est jaunâtre ; champ antérieur étroit, échancrure anale peu marquée. Veine médiastine à 2 ou 3 rameaux ; médiane à 9-10 rameaux dont quelques—uns divisés ; ulnaire antérieure simple ; ulnaire postérieure bifurquée vers le tiers apical èt portant, dans la partie basale, 4 rameaux incurvés, le dernier atteignant le bord externe ; champ apical très faiblement mais visiblement marqué ; champ postérieur présentant une dizaine de nervures dont la 1re quatre fois divisée. Nervules assez peu marquées et espacées.

Total length 17·5 mm. ; pronotum 3·5 mm. ; tegmina 13·5 mm.

Hab : Goah Glap, Bukit Tapang, Biserat, Jalor, (N. Annandale, February 1916) ; on the walls of the inner cavern of cave. 3♀♀.—Annandale (loc. cit. p. 343) adds in a footnote : " This is the cavern I described in Ent. Records, XII., p. 75 (1900). Its walls were covered in places with *Phyllodromia nigrocincta*, *Periplaneta cavernicola* and *Chelisoches morio* [Dermaptera],

the *Periplaneta* being particularly abundant, while the floor, chiefly composed of bat's guano, literally heaved with *Leucophæa striata.*"

Phyllodromia nimbata Shelford.

Phyllodromia nimbata Hanitsch J., S.B., R.A.S., No. 69, p. 57 (1915).

To the previous record from Sarawak can now be added Singapore where the Hon. C. J. Saunders took a ♂ specimen in June 1922.

Phyllodromia nitens Brunner von Wattenwyl.

Phyllodromia nitens Brunner. Abh. Senck. Ges., Vol. XXIV, p. 204, pl. XVI, fig. 6 (1898).
Phyllodromia nitens Kirby Syn. Cat. Orth. Vol. I, p. 93 (1904).
Phyllodromia nitens Shelf. Gen. Ins. fasc. 73, p. 13 (1908).

Brunner: Staturâ minore. Vertex liber, niger. Frons fusco-ferruginea. Pronotum valde transversum, nigrum, margine toto flavo-albido, disco nigro, utrinque postice emarginato-delineato. Elytra picea, basi in campo marginali pallide maculata. Alæ infumatæ, venâ ulnari 5-ramosâ. Femora nigra. Tibiæ ferrugineæ. Abdomen totum nigrum. ♀."

♀. Long. corp. 9 mm.; long. pron. 2·8 mm.; lat. pron. 4 mm.; long. elytr. 10 mm.

Patria: Brunei in ins. Borneo (collectio mea).

Phyllodromia nodosa Fritze.

Blatta nodosa Fritze. Rev. Suisse Zool. Vol. VIII, p. 335 (1899).
Phyllodromia nodosa Kirby Syn. Cat. Orth. Vol. I., p. 91 (1904).
Phyllodromia nodosa Shelford Gen. Ins. fasc. 73, p. 13 (1908).

Fritze: ♂. Majuscula, pallide testacea. Caput nigrum, ore, vittâ transversâ supra-antennali et occipite flavo-testaceis Antennæ testaceæ vel brunneo-annulatæ, articulis 3-13 infuscatis. Oculi remoti. Pronotum ellipticum, disco fulvo, marginibus late hyalinis. Elytra leviter fulvescentia, elongata, subhyalina, basi lineâ humerali brevi fuscâ; dimidiâ parte apicali in venis punctis nodosis fuscis, saltem in elytro sinistro conspersa. Alæ angustæ vitreæ, venis testaceis; campo anteriore mediocri, posteriorem valde superante, valde reticulato; venâ discoidali apice furcatâ, venis costalibus vix incrassatis; venâ ulnari 5-6 ramosâ. Pedes testacei; tibiis supra ad spinas fusco-maculatis; femoribus anterioribus

margine postico ultra medium spinis 3. Abdomen fusco-testaceum. Lamina supra-analis transversa, brevissima, nonnunquam in medio rotundato-producta. Cerci longissimi, articulis valde sejunctis, articulis 7 et sequentibus elongatis. Ultimum segmentum ventrale valde sinuatum. Lamina infragenitalis profunde fissa et incisa, bilobata, stylis brevibus 2 apicalibus.

Long. corp. 13 ; pronot. 3 ; latit. 4·8 ; elytr. 16 mm.

Hab : Java.

Phyllodromia notulata Stal.

Phyllodromia notulata Hanitsch J , S B , R A.S , No 69 (1915), p 49, pl I , fig 2 , Treubia, Vol III , p 198 (1923)
Eoblatta notulata Hebard. Occ Papers, Bernice Pauahi Bishop Museum, Vol. VII, p 329, pl. XXVI., fig 11 (1922)

To the previous localities can now be added Penang Hill where I took it in May 1917, Cocos Keeling Island, recorded by Kirby* (P. Z. S., 1909, p. 156), and Hawaii (Hebard, l.c.).

Phyllodromia polygrapha Walker.

Phyllodromia polygrapha Hanitsch. J , S B , R A S , No 69, p. 49 (1915)

Represented in the Oxford Museum by the type (♀), from Chantibon, Siam (Mouhot), and by another ♀ example from Kuching, Sarawak (July 1900). A ♂ specimen, which I took at Gurun, Kedah, Malay Peninsula (December 1915), is somewhat larger than the ♀, viz. :

	Total length.	*Body.*	*Pronotum.*	*Tegmina.*
♀ (Siam)	14 mm.	(missing)	3·5 × 4·5 mm.	11 mm.
♀ (Sarawak)	15·5 ,,	12·8 mm.	4 × 5·2 ,,	12·5 ,,
♂ (Kedah)	18 ,,	13 ,,	3·8 × 5 ,,	15 ,,

The specimens from Sarawak and Kedah both show a broad vertical, castaneous streak on the front of the head, from between the eyes to the base of the labrum. This is absent in the type.

Phyllodromia rectangulariter-vittata Brunner von Wattenwyl.

Phyllodromia rectangulariter-vittata Brunner Abh Senck Ges. Vol XXIV , p. 203, pl XVI, fig 3 (1898)
Phyllodromia rectangulariter-vittata Kirby Syn. Cat Orth Vol. I., p. 91 (1904).
Phyllodromia rectangulariter-vittata Shelf. Gen. Ins. fasc 73, p 13 (1908)

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* Under the name of *Allacta noctulata*, an obvious misprint

Brunner: " Statura minore. Vertex liber, piceus, nitidus. Frons castanea. Pronotum nigrum, marginibus antico et lateralibus luteis, vitta mediana lutea rectangulari, a margine antico et margine postico remota. Elytra picea, campo marginali testaceo. Alæ infumatæ, vena ulnari biramosa. Pedes cum abdomine testacei. ♀.

♀ Long. corporis 10 mm.; pron. 3·8 mm.; lat. pron. 4 mm.; long. elytr. 10·5 mm.

Patria: Borneo (collectio mea).

The Oxford Museum has four examples (♂♂) of this species, from Kuching, Sarawak, presented by R. Shelford in 1899 and 1900.

Phyllodromia rubro-nigra n. sp.

♂ and ♀. Shape long and narrow. Head orange red, shining; antennæ (♂) orange, base and tip black; (antennæ ♀ missing). Pronotum orange red, of the ♂ small, almost rectangular, of the ♀ large, parabolic. Tegmina much exceeding the body, dark chestnut, with a light anterior border. Wings fuscous; mediastinal area darker; costals incrassated; ulnar vein of the ♂ bifurcate, of the ♀ trifurcate. Legs: ♂: coxæ and femora orange, tibiæ and tarsi black; ♀: entirely orange.

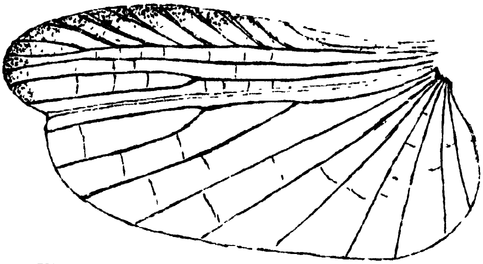

Fig. 11. *Phyllodromia rubro-nigra* n.sp. ♂
Left wing. × 7.

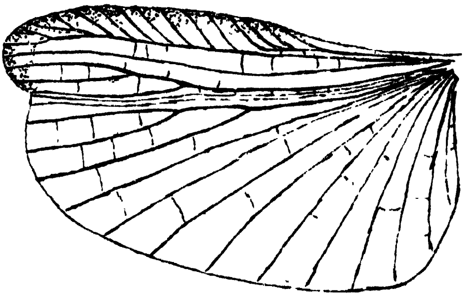

Fig. 12. *Phyllodromia rubro-nigra* n.sp. ♀
Left wing. × 7.

♂: Total length 12 mm.; pronotum 2·5 × 2·5 mm.; tegmina 10 mm.

♀: Total length 14 mm.; pronotum 4 × 4 mm.; tegmina 11 mm, *Hab*: Gunong Angsi, Negri Sembilan, 2000′–2790′. (R. Hanitsch, April 1918). 1♂ and 1♀ example. Type in the Oxford Museum.

Notwithstanding the difference both in the shape and in the size of the pronotum, I regard the two specimens, ♂ and ♀, respectively, as belonging to the same species.

Phyllodromia stellata n.sp.

♀. Generally pale testaceous. Head and antennæ of the same colour, eyes dark brown. Pronotum almost circular, except for its posterior border which is straight; pale testaceous, disk darker, with black vermiculations. Tegmina semi-transparent, pale testaceous, with a large number of spots, just visible to the naked eye, but very distinct under low magnification, round and of brown colour, giving to the tegmina a quite characteristic appearance. Wings hyaline, eight costals, their apices clavately incrassated. (Remaining portion of wings missing).

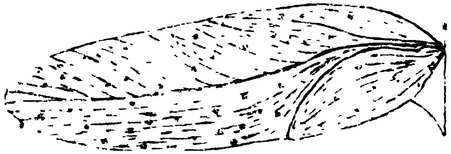

Fig. 13. *Phyllodromia stellata* n.sp. ♀ Left tegmen. × 5

♀. Total length 13 mm.; body 9 mm.; pronotum 3·6 × 3·1 mm.; tegmina 11 mm.

Hab: Gunong Kledang, Perak, 2646′ (R. Hanitsch, November 1916). One example ♀. Type in the Oxford Museum.

Phyllodromia subgenitalis Fritze.

Blatta subgenitalis Fritze. Rev. Suisse Zool. Vol. VII., p. 336 (1899).
Phyllodromia subgenitalis Kirby. Syn. Cat. Orth., Vol. I, p. 92 (1904).
Phyllodromia subgenitalis Shelford Gen. Ins. fasc. 73, p. 13 (1908).

Fritze: ♂ ♀. Sat minuta, gracilis, fulvo-testacea, subtus flavo-testacea. Frons maculâ transversâ fusco-rufâ. Pronotum marginibus lateralibus deflexis, testaceis, opacis, disco rufescente, obsoletissime rufo-maculoso. Elytra modice elongata. Alæ nebulosæ, venis fuscis, apice rotundatæ, margine costali fulvescente. Campus anterior angustus, fusiformis, apice valde attenuatus, venis costalibus crassiusculis; venâ discoidali ante medium furcatâ, venâ ulnari arcuatâ,

ultra medium furcatâ. Campus apicalis intercalatus distinctissimus, acute trigonalis, venis longitudinalibus 2, margine apicali arcuato, leviter prominulo. Abdomen supra in medio infuscatum vel segmentis nigris, margine pallido. Lamina supra-analis ♂ ♀ trigonalis, carinata, apice minime incisa; cerci flavidi. Ultimum segmentum ventrale ♀ rotundatum; ♂ septimum segmentum dorsale in medio carinulâ arcuatâ et sulco notatum. Lamina supra-analis prominula; ultimum segmentum ventrale arcuato-excisum. Lamina infragenitalis subtrigonalis, in medio processu brevi rotundato; extus ad illum stylo sinistro; angulo dextro in processum longiorem, truncatum, apice posterius denticulatum, producto, ad basin illius sulcato-incisa. Titillatores 2 spiniformes.

Var. ♂. Lamina infragenitalis si mavis oblique late truncata, subsinuata, angulo apicali itaque ad latus sinistrum dejecta.

Var. Alæ vitreæ.

♂: Long. corpor. 9·5; elytr. 10·5 mm.

♀: Long. corpor. 10; elytr. 10 mm.

Hab: Deli (Sumatra).

Phyllodromia terminalis Brunner von Wattenwyl.

Phyllodromia terminalis Brunner Abh Senck Ges, Vol XXIV., p 206, pl XVI, fig 11 (1898)

Phyllodromia terminalis Kirby Syn Cat Orth Vol. I, p 93 (19 4)

Phyllodromia terminalis Shelf Gen Ins fasc 73, p 13 (1908)

Brunner: Picea. Vertex obtectus. Pronotum magnum, transversum, postice truncatum, unicolor piceum. Elytra picea, apice pellucida. Alæ vix infumatæ, vena ulnari 4-ramosa. Pedes cum abdomine nigri. ♀.

♀. Long. corp. 13 mm.; long. pron. 3·8 mm.; lat. pron. 5·5 mm.; long. elytr. 14 mm.

Patria: Borneo.

Phyllodromia vilis Brunner von Wattenwyl.

Phyllodromia vilis Brunner. Nouv. Syst. Blatt. p. 103 (1865).

Phyllodromia vilis Kirby. Syn. Cat. Orth. Vol I., p 92 (1904).

Phyllodromia vilis Shelf. Gen. Ins., fasc. 73, p. 13 (1908).

Blattella vilis Karny. Suppl. Ent. No. 4, p. 100 (1915).

Brunner: Parva, ferruginea. Pronoto semiorbiculari Alarum venâ inframediâ ramis principalibus duobus bifurcatis ♀.

Long.: ♀: corporis 10 mm.; pronoti 3·2 mm.; pron. transv. 4·7 mm.; elytrorum 10 mm.

Cette espèce diffère de la précédente [i.e. *P. ferruginea* Brunner] par sa taille, par la nervation des ailes et par la couleur uniforme de l'abdomen.

Les ailes sont un peu grisâtres, avec les nervures foncées. La nervure inframédiane émet un rameau à-peu-près de son milieu et un autre du second tiers. Ces deux rameaux sont les seuls qui partent de la nervure, mais l'un et l'autre se bifurquent avant atteindre le bord. La première nervure axillaire joint le bord par 4 branches.

L'unique individu, que j'ai devant moi et qui provient de la collection de M. Fieber, est mutilé.

Patrie: Malacca (Coll. Fieber).

Recorded by Karny from Formosa, viz. Teraso (1909), Taihanroku, Taihorin (1911), and Kankau (Koshun) (1912).

Phyllodromia virescens Walker.

Phyllodromia virescens Hanitsch. J, S B, R A S., No. 69, p 47 (1915)

So far described from Sarawak only. Since taken by V. Knight at Tebing Tinggi, Kelantan, July 1920, the specimen (sex? abdomen missing) measuring:

Total length 9 mm.; pronotum 2 × 3 mm.; tegmina 7 mm.

Genus **LIOSILPHA** Stal.

Stål, Bih Svensk. Akad. Vol II (13), p 10 (1874)
Shelford, Gen Ins. fasc. 73, p. 16 (1908).

Shelford: "Broad, convex insects. Tegmina short, scarcely exceeding apex of abdomen, their venation often obsolete in the anal and discoidal fields, marginal field broad. Wings with a minute apical triangle or none, ulnar vein multi-ramose. Femora strongly armed. Subgenital lamina of male with large, asymmetrical and strongly chitinised styles."

So far recorded from Brazil, Africa (Congo, Gaboon and Madagascar) and Japan only, but apparently represented by several species in the Malayan region and in Ceylon.

Liosilpha lata n.sp.

♂ and ♀. Broad, convex, pale straw-coloured, shining. Head testaceous, vertex reddish ; antennæ filiform, testaceous, the distal portion of each joint black. Disk of the pronotum clouded orange and brown, with a number of black dots ; sides of the pronotum semi-transparent, testaceous. Tegmina exceeding the abdomen and reaching to about three-quarters of the cerci ; semi-transparent, testaceous ; 15 costals. Wings fuscous, 13 costals, their ends swollen ; anterior ulnar un-branched or bifurcate ; posterior ulnar with 4 branches ; apical triangle well developed. Cerci long, 4mm. Styles reddish brown, pointed, about one quarter the length of the cerci.

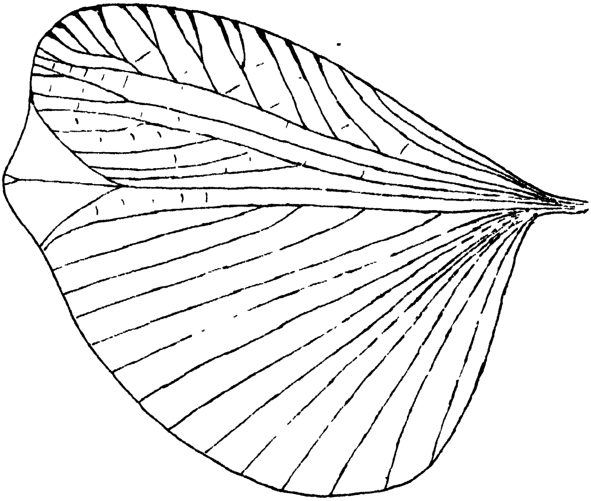

Fig. 14. *Liosilpha lata* n.sp. ♂
Left wing. × 8.

	♂	♀
Total length	14·5 mm.	15 mm.
Body	11·5 „	13 „
Pronotum	4·5 × 6 „	4 × 6 „
Tegmina	11.0 „	11 „

Hab : ♀ Kuching, Sarawak (R. Shelford, July 1900), and ♂ Botanic Gardens, Singapore (H. N. Ridley, April–June 1908), both in the Oxford Museum ; ♀ Kedah Peak, Malay Peninsula, 4000′ (R. Hanitsch, November 1915) ; ♀ Gunong Angsi, Negri

Sembilan, 2000′–2790′ (R. Hanitsch, April 1918). A specimen (♀) from Pundaluoya, Ceylon (E. E. Green, October 1898), in the Oxford Museum, apparently belongs to the same species.

Liosilpha longe-alata n.sp.

♀. Head testaceous; vertex and three indistinct bars across the face chestnut; (antennæ missing). Disk of pronotum reddish brown, sides semi-transparent, testaceous. Tegmina considerably exceeding the abdomen, semi-transparent, testaceous, 15 costals. Wings (in poor condition) fuscous; 13(?) costals, their ends swollen; posterior ulnar with 5 branches. Cerci long, 4 mm.

♀: Total length 16 mm.; body 11·5 mm.; pronotum 4 × 5·2 mm.; tegmina 13 mm.

Hab: Java. One example ♀. Type in the Oxford Museum.

Differs from *L. lata* by its slightly larger size, the tegmina considerably exceeding the abdomen, and the disk of the pronotum not showing any black dots. The specimen in question carries a large egg-case, suture uppermost.

Liosilpha picea n.sp.

♂. Very convex, shining, dark castaneous. Head covered by the pronotum, mahogany coloured, antennæ long, filiform, slightly lighter. Pronotum and tegmina shining dark castaneous, the latter only barely exceeding the abdomen, venation obsolete. First four abdominal sternites shining black, sides testaceous to orange; remaining abdominal sternites castaneous. Legs (femora and tibiæ) strongly armed, mahogany; arolia present.

♂: Total length 17 mm.; body 16 mm.; pronotum 5·2 × 8 mm.; tegmina 13·5 mm.

Hab: Matang, Sarawak (John Hewitt, May 1907). One example, ♂. Type in the Oxford Museum.

Pseudophyllodromia laticeps Walker.

Pseudophyllodromia laticeps Hanitsch. J., S.B., R.A.S., No 69, p. 60, pl. I, fig. 3 (1915); J., F.M.S. Museums, Vol. VIII, part 3, p. 67 (1919).

Originally described from Singapore and Sarawak only. To judge by the long series in the Oxford Museum, presented by R. Shelford, this species seems to be common in Sarawak. I collected it in several places on the Malay Peninsula, viz., on Maxwell's Hill, Perak, August 1908; the Semangko Pass, 2700', March 1912; Bukit Kutu, Selangor, 3400', April 1915, and on Penang Hill, 2000', May 1917; Mr. V. Knight, at Kota Tinggi, Johore, August 1917, and Messrs. Robinson and Kloss at Sandaran Agong, Korinchi Valley, Sumatra, 2500', June 1914.

Pseudophyllodromia sex-punctata n.sp.

♂ and ♀. Shining, piceous. Head not covered by the pronotum, shining black, with a narrow golden line between the eyes. Pronotum trapezoidal, shining black, bordered all round with a narrow golden line which is interrupted in the middle of the posterior edge, and is marginal anteriorly and posteriorly, but sub-marginal laterally. Tegmina reaching to the end of the abdomen, piceous, with 3 golden, elongated marks each, viz. one in the centre of the marginal field, a second in its apical part, and a third in the middle of the tegmen. Distal portion of the mediastinal area also golden. Legs piceous, tarsi rufous.

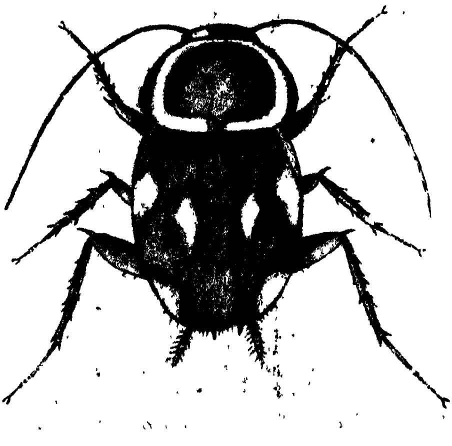

Fig. 15. *Pseudophyllodromia sex-punctata* n.sp. ♂ × 5.

♂ and ♀. Total length 8 mm.; pronotum 2·4 × 3·5 mm.; tegmina 5·3 mm.

Hab: Selangor (H. C. Pratt, 1907), one example, ♂. Type in the Oxford Museum. The same collection contains another ♂

from Selangor (G. Meade-Waldo, 1908), and a specimen, in poor condition, from Prince of Wales's Island (i.e. Penang). I took several specimens, ♂♂ and ♀♀, on Bukit Kutu, Selangor (April 1915), Gunong Kledang, Perak (November 1916), and Penang Hill (May 1917).

This species seems to be restricted to Penang and the Malay Peninsula. It is closely allied to *P. pulcherrima* Shelford, from Sarawak. Shelford (T.E.S., 1906, p. 267), in describing the latter, remarks : " An allied species occurs in Penang, but the unique example before me is in such bad condition that I prefer to await additional material before describing it." This is, no doubt, the specimen still now in the Oxford Museum, and the material collected by Pratt and Meade-Waldo, had apparently not come under his notice.

P. sex-punctata differs from *P. pulcherrima* in the following points :

(1) The golden line on the pronotum is interrupted in the centre of the posterior margin ;
(2) the mediastinal area of the tegmina is piceous, not golden ;
(3) The horse-shoe shaped golden vitta on the tegmina of *P. pulcherrima* is here broken up into two elongated spots ;
(4) The elongated spot in the apical part of the marginal field is placed close to the margin of the tegmen.

Ceratinoptera klossi Hanitsch.

Ceratinoptera klossi Hanitsch J, F M S Museums, Vol VIII, part 3, p 68 (1919).

One example, ♂, adult, tegmina and wings fully developed. Pronotum chestnut, with pale margins in front and at the sides. Tegmina slightly projecting beyond the abdomen, chestnut, lighter at the outer margin and behind. Body and legs yellowish brown. Femora less strongly armed than the tibiæ. Supra-anal lamina triangular. Cerci 7-jointed, pale yellowish, hirsute.

♂ : Length of body 10 mm. ; pronotum 3 × 3 mm. ; tegmina 9 mm.

Hab : Sungei Kring, Korinchi Peak, 7300′ (H. C. Robinson and C. B. Kloss, May 1914). One example, ♂. Type in the F. M. S. Museums.

The genus *Ceratinoptera* includes about 46 species from all parts of the world, except the Palaearctic region, viz. from Africa, Madagascar, India, Java, Australia, Central and South America. The two other Malayan species, both from Java, are *C. sundaica* Fritze, which differs from *C. klossi* by its short, transverse supra-anal lamina, and *C. fulva* Brunner, which has hirsute legs.

Allacta similis Saussure.

Blatta similis Saussure Mém. Soc. Phys. Nat. Genève, Vol. XX, p 243 (1869).

Blatta patula Walker. Cat. Blatt. B. M., Suppl., p. 143 (1869).

Apolyta pallida Tepper. Trans. R. Soc. S. Austr., Vol. XVII, p. 46 (1893).

Phyllodromia obtusata Brunner. P.Z.S p. 892 (1895).

Allacta obtusata Kirby. Syn. Cat. Orth. Vol. I, p 100 (1904); P.Z.S, p. 156 (1909).

Phyllodromia obtusata Shelford Gen Ins, fasc. 73, p. 14 (1908)

Allacta similis Shelford Gen Ins, fasc. 73, p. 18 (1908)

Allacta similis Hebard. Occ Papers, Bernice Pauahi Bishop Museum, Vol VII, p 327 (1922)

Saussure: ♂. Testaceo-ferruginea; pronoto trapezino, pellucido, disci circuitu testaceo-ferrugineo, in medio pellucido; elytris testaceis, ferrugineo-punctulatis; alis hyalinis, venâ discoidali 3-ramosâ; abdomine ferruginescente; laminâ supra-anali ♂ trigonali-truncatâ; infragenitali latâ, profunde fissâ, bilobatâ, margine utrinque dentem minutum basalem efficiente; stylis rudimentariis.

♂: longueur du corps 9 mm.; longueur de l'élytre 9·2 mm.; longueur du prothorax 2·5 mm.; largeur du prothorax 3·9 mm.

Hab: La Nouvelle-Hollande?

Brunner recorded this species from Kona, Hawaii, and Hebard from Hawaii, West Maui, Oahu and Kauai (Sandwich Is.). The only record from the Malayan region is Cocos Keeling Island (Kirby, l.c.).

Sub-family 4. EPILAMPRINAE.

Morphne dotata Walker.

Epilampra dotata Walker. Cat. Blatt. B. M., Suppl. p. 130 (1869).

Shelford, in Gen. Ins. fasc. 101, p. 7 (1910) regarded *Epilampra dotata* Walker, and *E. ramifera* Walker, as synonyms of *Morphna badia* Brunner. A re-examination of Walker's types in the Oxford Museum and additional material from the Raffles Museum, has convinced me that they are distinct, though closely allied species, and that whilst *E. ramifera* Walker is a synonym of *Morphna badia* Brunner, *Epilampra dotata* Walker has to stand.

Walker's description of his *E. dotata* is as follows :

♀. Picea, fusiformis, subtilissime striata, subtus testacea ; caput testaceum, prothoracem non superans, vertice piceo ; oculi invicem sat remoti ; antennæ testaceæ, nigro late fasciatæ ; prothorax testaceo marginatus, margine antico subcucullato, margine postico subproducto ; venter nigro vittatus et conspersus ; cerci testacei, piceo vittati ; pedes robusti, tibiis tarsisque posticis supra piceis ; alæ anticæ coriaceæ, abdomen longe superantes ; alæ posticæ semicoriaceæ, postice cinereæ.

♀. Piceous, fusiform, very minutely striated, testaceous beneath. Head testaceous, not extending beyond the prothorax ; vertex piceous. Eyes testaceous, moderately wide apart. Antennæ testaceous, shorter than the body ; a broad black band near the base composed of about twenty joints. Prothorax longer than half its breadth, bordered very narrowly with pale testaceous ; fore border slightly hooded ; sides hardly angular ; hind border slightly elongated. Abdomen beneath thinly speckled with black and having a black stripe which is abbreviated at each end ; supra-anal lamina bilobed, testaceous, except towards the base. Cerci testaceous, lanceolate, with a piceous stripe above. Legs testaceous, stout ; spines black at each end ; hind tibiæ and hind tarsi piceous above ; arolia large. Wings extending much beyond the abdomen, rounded at the tips. Fore wings coriaceous, corneous towards the base. Hind wings cinereous, semi-coriaceous ; discoidal area, except toward the tip and costal area, dark brown. Length of the body 21–23 lines ; of the wings 48–50 lines.

Of the two specimens here described, one has the prothorax more widened than the other.

Singapore. Sarawak. In Mr. Saunders' collection.

It may be useful to give a revised description of the type in the Oxford Museum.

♀. Head light testaceous, the vertex somewhat darker. Stalk of the antennæ light testaceous, the next 20 joints black, remainder light testaceous. Pronotum with the anterior margin parabolic, posterior margin rounded and produced in the middle; dark castaneous, shining, with an exceedingly narrow testaceous border all round; smooth, not punctured, but with slight transverse corrugations, especially in front and behind. Tegmina castaneous, somewhat lighter than the pronotum, closely punctured. Wings transparent ferruginous. Mesonotum, metanotum and abdominal tergites ashy black. Abdominal sternites light testaceous, with a dark median line from the 2nd to the 5th segment and with numerous dark spots which are large and fairly regularly arranged along the posterior margin of the sternites, but small and irregularly scattered elsewhere. Legs with the upper side black, underside light testaceous.

♀: Total length 56 mm.; body 46 mm.; pronotum 12·3 × 17 mm.; tegmina 46 mm.

Hab: Singapore (Wallace). Type (♀) in the Oxford Museum. The same Museum also contains a ♂, from "Borneo," and a ♀ from Sarawak, both collected by Wallace. This ♀ specimen, mounted with its tegmina expanded, is exceptionally large: body 50 mm.; pronotum 13 × 18·5 mm.; tegmina 47 mm.; tip to tip of the tegmina 104 mm.

The Raffles Museum contains a ♂ from Pulo Ubin, near Singapore (August 1921), and a ♀ from Khao Ram, Peninsular Siam, 750′-1200′ (February 1922).

Morphna badia Brunner von Wattenwyl.

Epilampra badia Brunner Syst Blatt p. 189 (1865).
Epilampra ramifera Walker Cat. Blatt. B. M., Suppl. p. 132 (1869)
Morphna badia Hanitsch. J., S.B., R.A.S., No. 69, p. 66, pl. IV, fig. 20 (1915)

As Brunner's description of this species is somewhat meagre, it may be supplemented as follows from a ♂ example from Singapore (August 1921):

♂: Head testaceous, with the vertex fuscous; antennæ throughout light testaceous. Pronotum dark castaneous, shining, a narrow testaceous border in front and at the sides only faintly indicated; with a few very slight transverse corrugations, otherwise smooth, not punctured. Tegmina castaneous, deeply punctured. Wings ferruginous, transparent. Mesonotum, metanotum and abdominal tergites amber coloured. Abdominal sternites of the same colour, with some indefinite darker patches. Legs light chestnut, upper and under sides of the same colour; tips of the spines slightly darker.

♂. Total length 50 mm.; body 38 mm.; pronotum 10 × 14 mm.; tegmina 40 mm.

Hab: The Oxford Museum possesses the type ♂ of *M. ramifera* Walker, from Sumatra (Wallace); ♂, ♀ and larvæ from the Botanic Gardens, Singapore (H. N. Ridley, 1908); and ♂ and ♀ from Kalim Bungo, Nias (R. Mitschke, 1896).—The Raffles Museum also has ♂ and ♀ from the Botanic Gardens, Singapore (1921–3), and a ♀ example from Khao Ram, Peninsular Siam, 750′–1200′ (February, 1922).

The differences in colour between *M. badia* Brunner and *M. dotata* Walker may thus be tabulated:

	M. badia.	*M. dotata.*
antennæ:	unicolorous	bicolorous.
abd. tergites:	amber	ashy black.
abd. sternites:	dark amber	light testaceous.
legs:	unicolorous: castaneous.	bicolorous: above black, below testaceous.

Homalopteryx adusta Walker.

Homalopteryx adusta Hanitsch. J., S.B., R.A.S., No. 69, p. 67 (1915); Treubia, Vol. III., p. 201 (1923).

Originally described from Sarawak. The Oxford Museum contains both the type (♀), collected by Wallace, and another (♀), from Kuching (Shelford, May 1900). In the "Treubia" (l.c.) I recorded this species (♂) for the first time from Java (Edam, Bay of Batavia). Two ♀ specimens, taken by Mr. V. Knight on Pulo Jarak, E. Coast, Malay Peninsula (April 1921), are probably referable to the same species, though their tegmina are shorter than those of the type, not covering the last two abdominal segments.

The specimens from these three different localities measure:

		Total length.	*Pronotum.*	*Tegmina.*
Sarawak:	♀:	23 mm.	8·5 × 12 mm.	17 mm.
Java:	♂:	26 ,,	8·5 × 12 ,,	19 ,,
Pulo Jarak;	♀:	27 ,,	7 × 10 ,,	16·5 ,,

Apsidopis oxyptera Walker.

Apsidopis oxyptera Hanitsch. J., S B , R.A S., No. 69, p. 70 (1915).

This species seems to be known by three specimens only, viz. by the type, ♂, collected by Wallace in Sarawak and now in the British Museum ; by a ♀ example from Kuching, Sarawak, presented by R. Shelford to the Oxford Museum in 1900 ; and by a ♀ which I took on Bukit Timah, Singapore, July 1911. This last specimen measures :

♀: Total length 34 mm. ; body 25 mm. ; pronotum 8 × 11 mm. ; tegmina 27 mm.

Apsidopis cyclops Saussure.

Apsidopis cyclops Hanitsch. J , S.B., R.A.S., No 69, p. 71 (1915).

So far apparently only known by a single specimen, ♂, from Southern Borneo (type in the Museum at Genève). I refer to this species a ♂ from Baram, Sarawak (October 1910) presented by the Sarawak Museum to the Raffles Museum. It agrees with Saussure's description by its depressed shape, its curious golden yellow sheen, and by the eyes being subcontiguous, practically touching each other. The dividing vein of the tegmina is strongly marked, almost black against the pale testaceous background. Its dimensions somewhat exceed those of the type, viz :

♂: Total length 30 mm. ; body 21 mm. ; pronotum 7 × 9 mm ; tegmina 24 mm.

Pseudophoraspis emarginata n.sp.

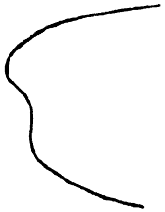

Fig. 16. *Pseudophoraspis emarginata* n.sp. ♂ Apex of left tegmen.

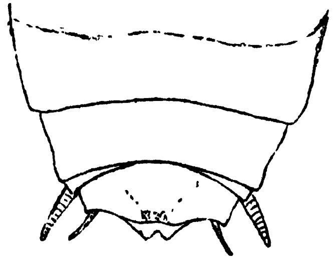

Fig. 17. *Pseudophoraspis emarginata* n.sp. ♂ End of abdomen. Ventral view. × 3½.

♂. Large, flat, testaceous. Head entirely covered by the pronotum, testaceous, a broad castaneous band between the eyes. Width between the eyes one-third the distance between the bases of the antennæ. (Antennæ missing.) Pronotum large, anterior margin parabolical, posterior margin obtusely angled, disk fusco—testaceous, margin much lighter, entire surface deeply punctured, the obtuse median posterior angle transversely corrugated, middle portion of posterior margin with longitudinal black lines. Tegmina large, much exceeding the abdomen, apex emarginate, dull testaceous, mediastinal vein with 6 branches, radial vein with a black blotch at its base, anal area impresso-punctate. Supra-anal lamina bilobate, extending beyond the sub-genital lamina, which is transverse, its latero-posterior angles bluntly produced. Anterior margin of anterior femora with 5 spines, mid-femora 4 spines, posterior femora 3 spines. Posterior metatarsus entirely spined. Arolia present.

♂ : Total length 46 mm. ; body 35·5 mm. ; pronotum 10 × 13 mm. ; tegmina 38·5 mm.

Hab : Long Akar, Baram River, Sarawak (J. C. Moulton, October 1st, 1920). One example, ♂. Type in the Oxford Museum.

Near *P. fruhstorferi* Shelford, from Tonkin (see Genera Insectorum, Epilamprinæ, p. 12) of which the types, ♂ and ♀, are also in the Oxford Museum, but differing from it in the following points : apex both of its tegmina and of the supra-anal lamina emarginate ; pronotum and tegmina paler and less nitid ; mediastinal vein of tegmina much less luteous at the base ; pronotum impresso-punctate ; eyes closer together, resembling thus *P. nebulosa* Burm.

— **Pseudophoraspis nebulosa** Burmeister (Plate XII, fig. 4).

Pseudophoraspis nebulosa Hanitsch J., S.B., R.A.S., No 69, p. 72, pl. I., fig. 4 (1915) ; Treubia, Vol III, p. 203 (1923).

As I have pointed out in the " Treubia " (l.c.), this species shows a remarkable variation both in size and colouring, especially amongst the ♀♀. A series of about fifty specimens in the Oxford Museum shows that the ♀♀ vary from 26·5 to 45 mm. in total length, and the ♂♂ from 33 to 41 mm. The ♀♀ which are always much more convex than the ♂♂, may be ashy grey, amber-coloured, or testaceous, with or without dark brown or black spots and vermiculations, whilst amber colour predominates amongst the ♂♂ . The smallest ♀ in the Oxford

Museum, 26·5 mm. in total length, came from Pengalengan, W. Java, 4000′ (1893).

This is a common Malayan species and has been recorded from the Malay Peninsula, Singapore, Sumatra, Java and Borneo. The Oxford Museum has a long series from Kalim Bungo, Nias (R. Mitschke, 1896). A single example, ♀, taken by Meade Waldo in Colombo, 1908, would almost seem to have been an accidental importation.

The illustration, of a specimen from Bukit Kutu, Selangor (April 1915), is intended to take the place of the one given in my former paper (l.c., pl. I., fig. 4), being of a much more typical appearance.

Rhabdoblatta obtecta Hanitsch.

Rhabdoblatta obtecta Hanitsch. J., S.B., R A.S., No. 69, p. 77. pl. III., fig. 17 (1915).

I described this species first from one ♂, from the Botanic Gardens, Singapore, but took it since on Gunong Kledang, Perak, 2646′, November 1916.

Rhabdoblatta pfeiferae Brunner von Wattenwyl. (Plate XII, fig. 5.)

Rhabdoblatta pfeiferae Hanitsch. J , S.B , R.A.S., No. 69 p. 75 (1915). J., F.M.S. Museums, Vol. VIII., part 3, p. 68 (1919).

This species was first recorded from Borneo (Brunner) and subsequently from Sumatra (Rehn). I took an example on Mt. Poe, Sarawak, 4000′ (April 1913) and Mr. Kloss at Rawang, Selangor (July 1914). The specimen figured came from the Korinchi Valley, Sumatra (H. C. Robinson and C. B. Kloss, June 1914).

Rhabdoblatta procera Brunner von Wattenwyl.

Rhabdoblatta procera Hanitsch. J , S.B., R.A.S., No. 69, p. 77 (1915); Treubia, Vol. III , p. 203 (1923).

Originally described from Java. As recorded, in the "Treubia" (l.c.), the Oxford Museum contains specimens from Pontianak, Dutch Borneo (Andre), Balabac, off Borneo (Staudinger and Bang-Haas, 1908), Kalim Bungo, Nias (Mitschke 1896), and Fort de Kock, Sumatra (A. de Bormans).

Epilampra angusta Hanitsch.

Epilampra angusta Hanitsch. Treubia, Vol. III., pp. 204-5, fig 5 (1923).

♀. Head exposed, testaceous, finely spotted with black. Pronotum small, rounded, produced posteriorly, testaceous, with large and small black spots intermixed. Tegmina clouded testaceous and chestnut; an interrupted black line along the radial vein, fading away posteriorly. Supra-anal lamina bilobed.

♀: Total length 48 mm.; body 36 mm.; pronotum 8 × 10 mm.; tegmina 40 mm.

Hab: Tjibodas, Java, one example, ♀. (January 1900).

This species approaches *E. inclarata* Walker, from Sarawak, in size*; it is, however, of a much narrower build. Resembling by its small pronotum *Rhabdoblatta parvicollis* Walker, from Sarawak, it differs from it by its mottled tegmina, and still more, by the tegmina and wings being rounded, not truncated. The tegmina of *R. parvicollis*, the type of which is also in the Oxford Museum, are light chestnut, with a few large pale blotches. A second specimen in the same collection, also from Sarawak (Mount Matang, June 1907), has the tegmina uniform light chestnut.

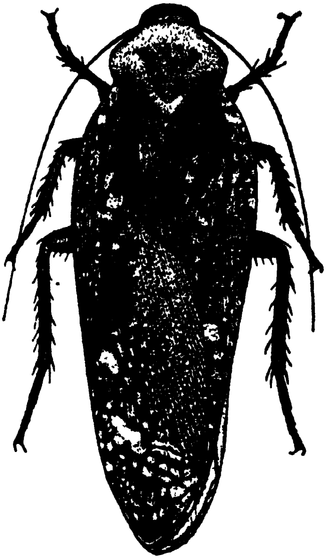

Fig. 18. *Epilampra angusta* Hanitsch. × 1½.

Espilampra funebris, n.sp.

♀ Head not covered by the pronotum; vertex dark testaceous, with 3 longitudinal black lines; front of head deep castaneous, labrum and antennæ testaceous to pale orange. Pronotum with the posterior margin broadly angled, ashy-grey, deeply punctured, with a series of 9 round black spots along the middle of the anterior margin, and about 13 elongated black spots along its posterior margin. Tegmina much exceeding the abdomen, ashy-grey, mottled with black, and with numerous indistinct lighter ocelliform spots; 17 discoidal sectors, deeply punctured.

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* The measurements of the type ♀ of *E. inclarata* Walker in the Oxford Museum are: total length 50 mm.; body 35 mm.; pronotum 10 × 13 mm.; tegmina 40 mm.

♀. Total length 41 mm.; body 32 mm.; pronotum 7 × 10 mm.; tegmina 33 mm.

Hab: Long Ayap, Baram River, Borneo (J. C. Moulton, October 26th, 1920). One example, ♀. Type in the Oxford Museum.

Distinguished from most other species of *Epilampra* by its ashy-grey dull colour.

Epilampra doleschali Brunner von Wattenwyl.

Epilampra doleschali Brunner. Syst Blatt p 194 (1865).
Epilampra doleschali Shelf. Gen Ins fasc 101, p 15 (1910)

Brunner: Fusca, nebulosa. Capite a pronoto obtecto convexiusculo. Pronoto latere depresso, postice valde producto. Elytris latissimis, apice cum alis truncatis. ♀.

♀: Long. corp. 30 mm.; pronot. 10 × 13 mm.; elytr. 37·5 mm.

Hab: Amboina (Vienna Museum).

The Oxford Museum contains a ♂ specimen, from Kuching, Sarawak (November 1895), which Shelford had compared with the named collection of the Paris Museum, and which he had doubtfully identified with this species.

It may be described as follows:

♂: Broad, depressed. Head covered by the pronotum, pale, testaceous, darker on the vertex. Pronotum ovoid, anterior margin thickened and raised, posterior margin obtusely angled; disk pale orange, sides yellowish testaceous, deeply punctured. Tegmina broad, yellowish testaceous, slightly mottled with rufous, semi-transparent; mediastinal and anal areas with shallow punctures, rest not punctured. Abdomen ventrally pale testaceous, with small scattered orange spots.

♂: Total length 44 mm.; body 35·5 mm.; pronotum 10 × 14 mm.; tegmina 37 mm.

Epilampra inclarata Walker.

Epilampra inclarata Hanitsch. J , S.B., R.A.S., No. 69, p. 85 (1915).

The type (♀) of this species, from Sarawak, is in the Oxford Museum and measures: ♀: Total length 50 mm.; body 35 mm.; pronotum 10 × 13 mm.; tegmina 40 mm.

Walker's figures are somewhat misleading, as he gives the length of the "wings" as 42 lines (i.e. 88 mm.), by which, no doubt, he meant the entire spread of the tegmina from tip to tip.

Epilampra lurida Burmeister. (Plate XII, fig. 7.)

Epilampra lurida Hanitsch. J., S B, R.A S., No. 69, p. 85 (1915); J., F.M.S Museums, Vol. VIII, part 3, p. 68 (1919)).

This species has so far been recorded from India, Sumatra, Java, Borneo and Celebes, but not yet from the Malay Peninsula. The specimen figured came from Lebong Tandai, Benkoelen, Sumatra, where Mr. C. J. Brooks had taken it at lamp light (November 1916).

Epilampra moultoni n.sp.

Head testaceous, with three longitudinal black lines between the eyes. Pronotum not covering the vertex, oval, posterior margin distinctly angulate. Colour of pronotum testaceous, darker towards the middle, with deeply impressed points. Tegmina testaceous to rufous, faintly mottled;

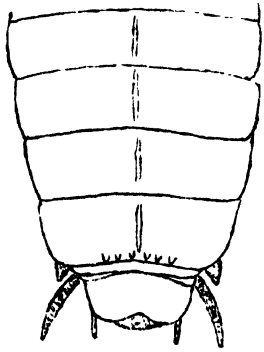

Fig. 19. *Epilampra moultoni* n.sp. ♂
End of abdomen.
Dorsal view. × 4.

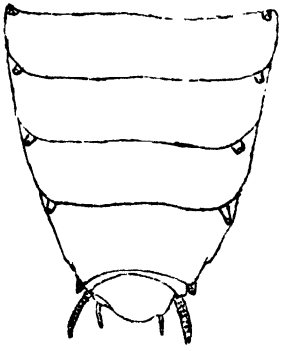

Fig. 20. *Epilampra moultoni* n.sp. ♂
End of abdomen.
Ventral view. × 4.

humeral stripe well marked with pale straw yellow and black. Anal area with deeply impressed dots, mediastinal area less so, remainder of the tegmina smooth. Sub-genital lamina asymmetrical.

♂: Total length 34–35 mm.; body 28 mm.; pronotum 7 × 9 mm.; tegmina 28 mm.

Hab: Long Ayap, Baram River, Borneo (J. C. Moulton, October 26th, 1920). Two examples ♂♂. Type in the Oxford Museum.

The retractile spiracular tubes are unusually distinct in this species. (See illustration.)

Epilampra lyrata n.sp.

♀. Head not covered by the pronotum, testaceous, vertex with two longitudinal, somewhat diffused black stripes, uniting in front of the face to a large black patch, spreading out on either side below the insertion of the antennæ. Antennæ testaceous. Pronotum parabolic in front, obtusely angled behind; ground colour dark orange, densely mottled with small and large black dots, the largest of these along the posterior margin, and with a lyre-shaped design along the middle line, no punctures. Tegmina exceeding the body, testaceous, heavily mottled with black, with five more or less distinct light ocelliform spots along the radial vein.

♀. Total length 28 mm.; body 25 mm.; pronotum 6·5 × 8 mm.; tegmina 23 mm.

Hab: Gunong Angsi, Negri Sembilan, 2000′–2790′ (R. Hanitsch, April 1918). Type (♀) in the Oxford Museum. A second specimen, of the same place and date, without abdomen.

Epilampra plena Walker.

Epilampra plena Hanitsch. J., S.B., R.A.S., No. 69, p. 79 (1915).

Hitherto known from Borneo, Celebes and New Guinea only. I refer to this species a ♀ example which I took on Penang Hill, 2000′, May 1917. Its dimensions are:

♀: Total length 22·5 mm.; body 18·5 mm.; pronotum 6 × 7 mm.; tegmina 18·5 mm.

Shelford regarded *E. fervida* Walker and *E. plena* Walker as synonymous. The two types are in the Oxford Museum. *E. fervida* is considerably the lighter and the more uniform in colour of the two. *E. plena* is darker and heavily mottled with brown and black both on pronotum and tegmina. The specimen from Penang closely agrees both in size and colouring with the type of *E. plena*, the latter measuring :

♀ : Total length 23 mm. ; body 19 mm. ; pronotum 5·5 × 6·5 mm. ; tegmina 19 mm.

Walker gives the dimensions of the type as follows : " Length of body 9 lines " [i.e. 19 mm.] ; " of the wings 18½ lines " [i.e. 39 mm.]. It is evident that here, as in other cases, he referred to the measurements of the expanded tegmina, from tip to tip.

Epilampra puncticollis Walker. (Plate XII, fig. 6.)

Epilampra puncticollis Hanitsch. J., S B., R.A.S , No. 69, p. 80 (1915).

Hitherto known from Sarawak only, viz. by the type, ♂, collected by Wallace, which is now in the British Museum, and by a series in the Oxford Museum, taken by Shelford at Kuching. I took a specimen, ♀, on Kedah Peak, Malay Peninsula, December 1915, and Mr. V. Knight another at Kota Tinggi, Johore, August 1917. The former measures :

♂ : Total length 21·5 mm. ; body 17 mm. ; pronotum 5 × 5·2 mm. ; tegmina 17 mm.

This is one of the smallest species of *Epilampra* known. Typical specimens of Shelford's collection, from Sarawak, measure :

	♂	♀
Total length	20 mm.	29 mm.
Body	16 ,,	20·5 ,,
Pronotum	4 × 5 ,,	5 × 6 ,,
Tegmina	17 ,,	20·5 ,,

The specimen figured came from Kota Tinggi.

Epilampra saravacensis Shelford.

Epilampra saravacensis Hanitsch. J., S.B., R.A.S., No. 69, p. 83 (1915).

This species is represented by three specimens in the Oxford Museum collection, viz. the type, ♀, from Lingga, Batang Lupar River, Sarawak, another ♀ from Pontianak, Dutch Borneo (André van der Poll, 1909), and a third ♀ from Kuantan, Pahang (Vernon G. Bell, September 1913). The last of these specimens somewhat exceeds the type in size, viz. ;

	Type (♀). (Sarawak).	♀ (Pahang).
Total length	56 mm.	61 mm.
Body	43 ,,	49·5 ,,
Pronotum	10·5 × 15 mm.	12 × 16 mm.
Tegmina	48 ,,	51 ,,

Calolampra limbata n.sp.

♀. General outline oval. Dark chestnut, with a luteous margin all round. Entirely smooth, strongly shining, no punctures or corrugations. Apterous.

Head slightly exposed, dark chestnut, either eye on its inner margin bordered by a light line. Antennæ fuscous. Pronotum parabolic, dark chestnut to black, like the rest of the body, but with a luteous border, this border being continued to the posterior end of the body, in the abdominal segments, however, partly obliterated by large black blotches and scattered smaller dots. Cerci lanceolate, luteous, each dorsally with an elongated dark mark. Legs luteous. Posterior femora with 7 spines, viz. 4 along the superior, and 3 along the inferior margin.

♀: Total length 24 mm.; pronotum 6·5 × 9·3 mm.; greatest width of the abdomen 12 mm.

Hab: Impounding Reservoir, Thomson Road, Singapore, January 27th, 1923. One ♀ example. Type in the Oxford Museum.

This species is closely allied to *Epilampra marginata* Brunner, from Pegu (Ann. Mus. Stor. Nat. Genova, Vol. XXXIII., p. 28, pl. I., fig. 9 (1893)), and to *E. lævis* Brunner, from Tenasserim (*ibid.*, p. 28), which two species should both be placed under *Calolampra*. It differs from the former by being entirely smooth (*E. marginata* shows longitudinal corrugations along the posterior margins of mesonotum, metanotum and the abdominal tergites), and from the latter by the luteous margins to the abdomen (the abdomen of *E. laevis* being unicolorous).

Calolampra nitida n.sp.

♀. General outline sub-conical, widest in the region of the 4th abdominal segment. Dark piceous, shining, smooth, with a few scattered minute punctures. Apterous.

Head exposed, black; antennæ fuscous. Pronotum parabolic. Width of body gradually increasing up to the 4th abdominal segment, then suddenly tapering. 6th and 7th abdominal tergites with minute teeth along their posterior margin. Cerci very short, conical. Posterior femora with 3 spines only, viz. 2 on the superior, and 1 on the inferior margin.

♀: Total length 24 mm.; pronotum 7 × 10 mm.; greatest width of the abdomen 13 mm.

Hab: Saribas, Sarawak (August 1922). Two examples, ♀♀. Type in the Oxford Museum.

Calolampra pedisequa Rehn.

Calolampra pedisequa Rehn. Proc U.S Nat. Mus, Vol XXVII., p. 547 (1904).
Calolampra pedisequa Hanitsch J, S B, R A.S, No. 69, p 96 (1915)

This species was described by Rehn from a ♂ specimen' taken by Dr. W. L. Abbott at Trang, Lower Siam. A specimen, also ♂, from the Impounding Reservoir, Thomson Road, Singapore (January 1923), which I have received from the Raffles Museum, agrees in all particulars with the description of the type. It is apterous and of a dull wood brown colour. Head much exposed, vertex bright luteous to ferruginous, face intensely black, shining, finely punctured. Eyes light grey. Antennæ only about one-third of the length of the body, black, terminal joints white. Thorax and abdomen above very closely and finely punctured, the posterior margins of mesonotum, metanotum and abdominal tergites all with minute corrugations (Rehn's "scars") which increase both in number and size towards the posterior end of the body.

♂. Total length 26 mm.; pronotum 6·2 × 9·5 mm; greatest width of the abdomen 12·5 mm.

Sub-family 5. BLATTINAE.

Cutilia nitida Brunner von Wattenwyl. (Plate XIII, fig. 8.)

Cutilia nitida Hanitsch. J., S.B, R.A S, No. 69, p. 99 (1915); Treubia, Vol. III., p. 207 (1923).

This is a widely distributed species. It was originally described from Amboina, by Brunner, and has since been recorded by Kirby from Ternate and the Philippines, by Shelford from Formosa, the Malay Archipelago and N.S. Wales, and by myself from Ceram and New Guinea. The Oxford

Museum has an example from the Shortland Islands, Solomon Archipelago.

The specimen (♂) figured came from Pulo Tioman, East Coast of Johore (V. Knight, June 1915).

Methana dacrydii n.sp. (Plate XIII, fig. 9.)

♂ and ♀. Head orange, a broad black band between the eyes, another black band across the middle of the face, just below the insertion of the antennæ; base of labrum black; antennæ much exceediug the abdomen, castaneous. Pronotum not quite covering the vertex, anteriorly parabolic, posteriorly straight, testaceous to orange, with curious black markings resembling an anchor enclosed by a horse-shoe; edge of pronotum narrowly margined with black. Tegmina (♂ and ♀) exceeding the abdomen, shining castaneous, an orange stripe occupying the greater part of the mediastinal area. Wings dull castaneous, lighter towards the base. Legs testaceous, distal portion of tibiæ and the entire tarsi castaneous; spines castaneous. Anterior abdominal tergites light castaneous, posterior tergites deep dull black. Abdominal sternites castaneous in the middle, orange towards the sides.

	♂	♀
Total length	25 mm.	26 mm.
Body	22 ,,	23·5 ,,
Pronotum	7 × 10,,	7 × 10 ,,
Tegmina	19·5 ,,	20 ,,

Hab: Penang Hill, 2400′. Several ♂♂ and ♀♀ examples. (R. Hanitsch, May 1917), taken under the loose bark of *Dacrydium* trees. Type in the Oxford Museum.

Methana pallipalpis Serville.

Methana pallipalpis Hanitsch. J., S.B., R.A.S., No. 69, p. 100 (1915).

Previously recorded from Java (Serville), Sumatra (De Haan), and Australia (Brunner). I took a ♀ example on Bukit Kutu, Selangor, 3000′ (April 1915), which I refer to this species, as it agrees in all respects with Serville's description. It is practically of an uniform dark chestnut colour, strongly shining with the exception of the clypeus which is rufous. Antennæ (mutilated in the type) about 30 mm. in length, greatly exceeding the body. Tegmina exceeding the body, as in the type.

♀. Total length 24 mm.; body 20·5 mm.; pronotum 7·5 × 9·5 mm.; tegmina 15·5 mm.

The Oxford Museum contains three Blattids, labelled respectively "*Periplaneta pallipalpis* Serville ?", "*Periplaneta affinis* Saussure," and "*Dorylæa unicolor* Shelford," which all three I consider to come under this species. The first of these (sex ? abdomen missing) is from Ceram, collected by Wallace. The second, ♂, labelled *Periplaneta affinis* Sss., is from Pulo Burong, 60 miles N.E. of Kuching, Sarawak (April 1889). Its total length is 27 mm.; body 25 mm.; pronotum 8 × 9.5 mm.; tegmina 19 mm. The third, ♀, is the type of *Dorylæa unicolor* Shelford (Gen. Ins., fasc. 109, p. 14), from Talaut I., presented by Staudinger and Bang Haas (1908). I can see in it no difference from *M. pallipalpis*, except that its tegmina are very slightly shorter than the abdomen. However, there must remain some doubt as to its exact systematic position, as its posterior tarsi are missing.

The genus *Methana* Stal, is defined as having the posterior metatarsus spined beneath and shorter, or not longer, than the remaining joints which are unarmed beneath, whilst in *Dorylæa* the posterior metatarsus, also spined, exceeds the succeeding joints in length, of which the second is armed, and the third unarmed. According to this definition *M. pallipalpis* should really be placed under the genus *Dorylæa*, but in the absence of sufficient material in perfect condition I do not propose to make any change for the present.

Hab: If my identifications are correct, we get the following distribution for this species: Malay Peninsula, Sumatra, Java, Borneo, Talaut, Ceram, Australia.

Methana saundersi n.sp. (Plate XIII, fig. 10.)

♂ and ♀. Head not covered by the pronotum; vertex dark castaneous to black, face testaceous to orange; antennæ exceeding the body, light brown. Pronotum anteriorly parabolic, posterior border straight, not angled; shining black, with an orange border all round which, however, is very narrow behind or almost obsolescent. Tegmina exceeding the body, dark castaneous. Coxæ of front legs entirely testaceous, those of mid and hind legs with castaneous lines at their outer edges; femora light castaneous, tibiæ and tarsi castaneous. Cerci large, castaneous.

	♂	♀
Total length	24 mm.	25 mm.
Body	20·5 ,,	21·5 ,,
Pronotum	7 × 9 ,,	7 × 10 ,,
Tegmina	18 ,,	19 ,,

Hab: ♂ and ♀. Tanglin, Singapore, taken by the Hon. C. J. Saunders, June 1917 and February 1918, after whom I have much pleasure in naming this species. Subsequently taken by Mr. V. Knight in Gilstead Road, Singapore, January and April, 1918. Type in the Oxford Museum.

Closely allied to *M. semi-marginalis* mihi, from Kuching, Sarawak, in which, however, the orange border of the pronotum is restricted to the front and the sides, widening out at the postero-lateral angles. There are three examples of a *Methana*, unnamed, from Ceylon, in the British Museum collection, in which the yellow margin of the pronotum is, especially behind, much wider than in *M. saundersi*.

Methana semimarginalis Hanitsch.

Methana semimarginalis Hanitsch. J., S B, R A.S, No 69, p. 101, pl. V., fig 28 (1915)

I described this species from a ♀ example, from Kuching, Sarawak, the type being now in the Oxford Museum. The same collection also contains two ♂♂ specimens, the one also from Kuching, December 1898, and the other from Banting, Sarawak, May 1909. The ♂ example from Kuching is slightly smaller than the type ♀.

	♂	♀
Total length	22 mm.	23 mm.
Body	20 ,,	21 ,,
Pronotum	6·5 × 9 ,,	7·2 × 9·5 ,,
Tegmina	16 ,,	17 ,,

Stylopyga picea Brunner von Wattenwyl.

Stylopyga picea Hanitsch J, S.B., R.A S, No. 69, p. 106 (1915); Treubia, Vol. III., p 209 (1923).

Originally recorded by Brunner from the Nicobars, subsequently by the same author from Baram, Borneo (Abh. Senck. Nat. Ges., Vol. XXIV., p. 195 and p. 209), by Rehn from Trang, Lower Siam, and by myself from Verlaten I.

(Sunda Straits) and Krakatau. I also took it on Bukit Kutu, Selangor, 3400′ (April 1915), and found it common under logs, Botanic Gardens, Singapore (January 1915).—The Oxford Museum contains specimens from Kuching, Sarawak, presented by R. Shelford.

As Brunner gives the measurements of the ♀ only, I add those of a ♂ example, from Singapore.

	♂ (Singapore).	♀ (Brunner's type).
Total length	23·5 mm.	25 mm.
Pronotum	7·5 × 9 ,,	7·5 × 9 ,,
Tegmina	4 ,,	3·5 ,,

Hab: Nicobars; Lower Siam; Malay Peninsula; Singapore; Borneo; Verlaten I.; Krakatau.

Dorylaea flavicincta De Haan.

Dorylaea flavicincta Hanitsch J, S.B, R A S, No. 69, p 02 (1915).

Dorylaea flavicincta Karny Suppl Entom No 4, p 97 (1915)

This widely distributed species, known from Java, Borneo, Sumatra and Madagascar, and, according to Karny (l.c.) common in Formosa, has now also been taken on the Malay Peninsula, viz. at Tebing Tinggi, Kelantan, by Mr. V. Knight (July 1920), and by Mrs. Bell (November 1920).

Periplaneta cavernicola Chopard.

Periplaneta cavernicola Chopard. Mem Asiat. Soc. Bengal, Vol. VI, p 347, pl. XII., figs. 4–9 (1919).

Chopard [much abbreviated]: Grande espèce de couleur brun roux foncé, uniforme, un peu plus claire en dessous. Pubescence nulle en dessus, rare et courte en dessous; ponctuation assez fine, nulle sur le thorax. Pattes et antennes concolores.

Pronotum large, déprimé, à surface presque lisse, présentant seulement quelques ponctuations éparsés et quelques rides près de bords antérieur et postérieur, ligne médiane très faiblement et obtusément carénée. Bord antérieur légèrement échancré au milieu, très largement arrondi latéralement; angles latéraux très arrondis; bord postérieur presque droit; les bords antérieur et postérieur très finement rebordés.—Organes du vol dépassant, dans les deux sexes, l'extrémité de l'abdomen. Elytres larges, brun roussâtre éclairci vers l'apex, à bord antérieur très faiblement convexe, bord interne presque droit, apex arrondi. Veine discoïdale un peu sinuée, à 8–10 rameaux presque tous divisés vers le milieu ; veine médiane bifurquée peu après le milieu de l'élytre, portant 8 à 10 rameaux subdivisés, parallèles entre eux et un peu sinués. . . . Champ anal allongé, à bord interne droit, présentant une quinzaine de nervures peu nettes, à intervalles ponctués-aréolés.--Ailes larges, à échancrure anale peu marquée, champ antérieur très large, brunâtre, champ postérieur jaunâtre, presque transparent. Veine médiastine peu marquée, à 3 ou 4 rameaux ; veine médiane portant 6 rameaux très subdivisés ; ulnaire postérieure à 7 rameaux bifurqués pour la plupart ; champ postérieur occupé par une douzaine de nervures droites dont la 1re quatre fois divisée. . . .

♂, ♀: Length of body 34–36 mm. ; pronotum 9 mm. ; tegmina 28 mm.

Cette espèce ressemble beaucoup à *P. americana* L., mais s'en distingue aisément par sa coloration plus uniforme et les organes du vol beaucoup moins allongés. Chez le ♂ les pièces génitales sont très différentes, ainsi que la plaque suranale, et les styles sont plus courts et plus épais. Les jeunes individus sont vivement pigmentés.

Hab: Goah Glap, Bukit Tapang, Biserat, Jalor (N. Annandale, February 4th, 1916). On walls of inner caverns. Twenty-seven specimens (♂, ♀ and immature). As to its occurrence, see remarks under *Phyllodromia nigrocincta* Chopard, from the same locality. See page 409.

Periplaneta lata Herbst.

Periplaneta lata Hanitsch. J., S.B., R.A.S., No. 69, p. 109 (1915) ; Treubia, Vol. III., p. 208 (1923).

The Oxford Museum contains a long series from Kuching, Sarawak, viz. 4 ♂♂, 6 ♀♀ and 3 larvæ, presented by R. Shelford, 1899–1901. The largest specimens measure.

	♂	♀
Total length	35 mm.	35 mm.
Body	28·5 ,,	28 ,,
Pronotum	9 × 11 ,,	8·3 × 12 ,,
Tegmina	27 ,,	27 ,,

Hab : So far known from Borneo only.

This species is readily distinguished from *P. americana* and *P. australasiæ* by the shape of the sub-genital lamina of the ♂. In *P. americana* the lamina is rectangular, with the posterior margin more or less straight, except for an indentation on either side to receive the styles, and it is in that species much exceeded by the supra-anal lamina. In *P. australasiæ* the sub-genital

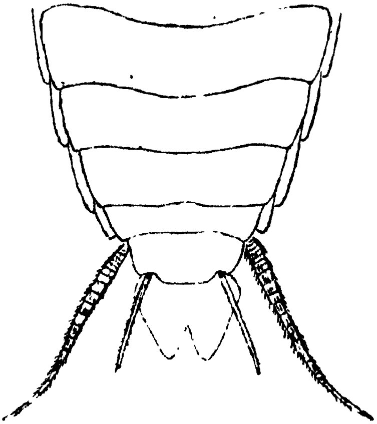
Fig. 21. *Periplaneta americana* L. ♂ End of abdomen. Ventral view. × 4.

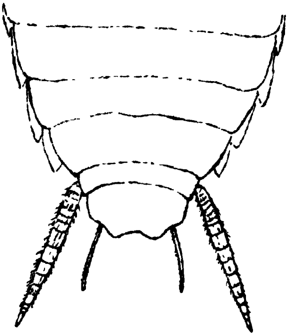
Fig. 22. *Periplaneta autralasiæ* Fab. ♂ . End of abdomen. Ventral view. × 4.

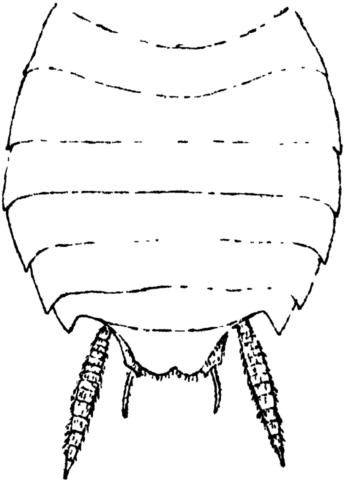
Fig. 23. *Periplaneta lata* Herbst. ♂ End of abdomen. Dorsal view. × 4.

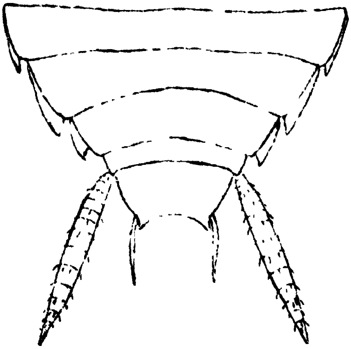
Fig. 24. *Periplaneta lata* Herbst. ♂ End of abdomen. Ventral view. × 4.

lamina has a shallow indentation in the middle of its posterior margin. In *P. lata* the lamina is bulkier, with a deeper, crescent-like excavation, and with its postero-lateral angles drawn out into short horns. The cerci are longest in *P. americana*, and stoutest in *P. lata*.

Periplaneta montana n.sp.

♂. Small, slender, elongate. Entirely castaneous, nitid, with the exception of the antennæ which are rufous. Tegmina greatly exceeding the abdomen. Sub-genital lamina transverse, posteriorly with a semi-lunar indentation beyond which the supra-anal lamina is seen slightly to project. Styles much shorter than in *P. americana*, *P. australasiæ*, and *P. lata*.

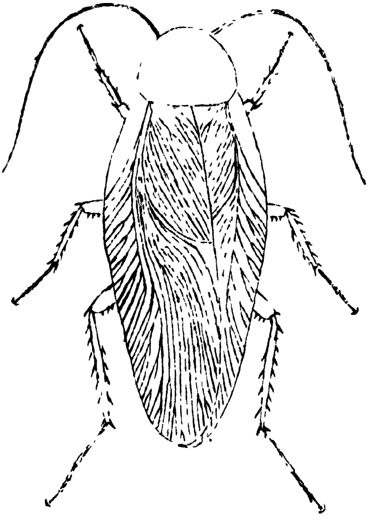

Fig. 25. *Periplaneta montana* n.sp. ♂ × 2½.

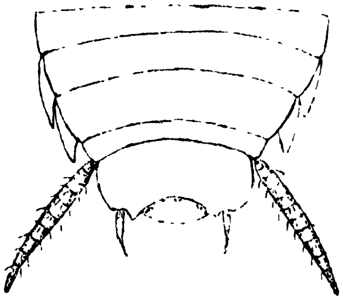

Fig. 26. *Periplaneta montana* n.sp. ♂ End of abdomen. Ventral view. × 7.

Two other specimens (damaged, abdomen missing) seem both to be ♀♀ and to belong to the same species.

	♂	♀ (?)
Total length	23 mm.	19 mm.
Body	15 ,,	? ,,
Pronotum	5 × 7 ,,	4·5 × 6·5 ,,
Tegmina	19 ,,	15 ,,
Antennæ	25 ,,	21 ,,

Hab: Gunong Kledang, Perak, 2646′ (R. Hanitsch, November 1916), 1 ♂ example. Type in Oxford Museum.—Bukit Kutu, Selangor, 3457′ (R. Hanitsch, April 1915). Two ♀♀ examples.

Scabina horrida Hanitsch.

Scabina horrida Hanitsch. Treubia, Vol. III., part 2, pp. 207–8, fig. 8 (1923).

♂. Body dark castaneous to black, shining. Antennæ, anterior and median tarsi rufous (Posterior tarsi missing). Head covered. Antennæ longer than the body. Pronotum parabolic, posteriorly truncated, very shining. Scutellum not exposed. Tegmina quadrate, corneous, laterally reaching to the hinder margin of the metanotum, centrally receding. Wings rudimentary, squamiform, very slightly projecting beyond the tegmina. Posterior angles of the abdominal tergites produced backwards, slightly so in the anterior, strongly in the posterior tergites. Cerci long, broad, flattened. Styles long, stout, pointed. Legs heavily spined. Femoral spines in two rows; lower row of front femora with about 15 spines;

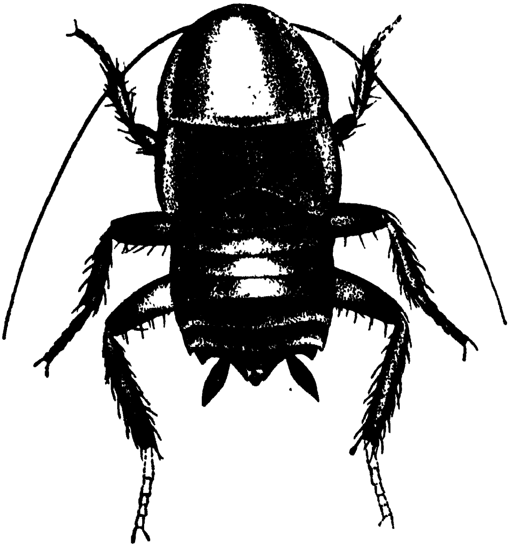

Fig. 27. *Scabina horrida* Hanitsch. ♂ × 2.

spines of mid femora longer, but less closely set; those of the hind femora longest.

♂: Total length 25 mm.; pronotum 7·5 × 11 mm.; tegmina 7mm.; cerci 5 mm.

Hab: North Borneo (Mohari, 1912). One ♂ example. Type in the Buitenzorg Museum.

The genus *Scabina* was established by Shelford[*] for *Pelmatosilpha* (?) *antipoda* Kirby[†] from Queensland. The Oxford Museum has two specimens (♂ and ♀) of that species, from Tambourine Mt., S. Queensland, 2000′, presented by Dr. Eland Shaw. The present species differs from *S. antipoda* by the edges of the pronotum not being turned up, by the scutellum not being exposed, by the femora being much more heavily spined, and by the cerci being considerably longer.

This genus had not before been recorded from the Malayan sub-region.

Catara rugosicollis Brunner von Wattenwyl.

Catara rugosicollis Hanitsch. J., S.B., R.A.S., No. 69, p. 117, pl. V., figs. 26 and 27 (1915); J., F.M.S. Museums, Vol. VIII., part 3, p. 70 (1919); Treubia, Vol. III., p. 210 (1923).

This species is found throughout the Malay Archipelago and has been recorded from the Malay Peninsula, including Singapore, from Sumatra, Java and Borneo. I reproduce my remarks on it from the "Treubia" (l.c.):

The place of origin of the type (♂) was given by Brunner doubtfully as "Java ?" Both ♂♂ and ♀♀ have since repeatedly been recorded from Java, and also from the Malay Peninsula, Singapore, Sumatra and Borneo. The Oxford Museum has a long series from Sarawak.

Brunner gave the following dimensions: ♂: body 15 mm.; tegmina 22 mm.; pronotum 3·7 × 5 mm. This is exceeded by the largest ♂ in the Oxford Museum, from Sarawak: body 19 mm.; tegmina 27 mm.; pronotum 7·5 × 8 mm.

The ♀ shows similar variation in size. Saussure[‡] who described this species under the name of *Archiblatta valvularia*, from Java, gave the following dimensions: body 20 mm.; pronotum 4·7 × 7·3 mm. The largest ♀ in the Oxford Museum, from Sarawak, measures: body 23·5 mm.; pronotum 8 × 12 mm.; and this is exceeded by the largest ♀, from Borneo, in the present collection, viz. body 25·5 mm., pronotum 9 × 12 mm.

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[*] T.E.S., London, 1909, p. 305.

[†] A.M.N.H.(7), Vol. XII., p. 376 (1903).

[‡] Mém. Soc. Genève, Vol. XXIII., p. 118, pl. X., fig. 40 (1873).

The two sexes show a striking difference, the ♂ being slender, delicate and long-winged, the ♀ short, stout and entirely apterous. The ♂ was sufficiently described by Brunner. The ♀ may be characterised as follows:

♀. Entirely apterous. Dull black, with the exception of the eyes which are light brown. Head covered. Pronotum parabolic, lateral margins raised and posteriorly produced into heavy spines, its surface corrugated, deeply pitted with dots. Mesonotum and metanotum also deeply pitted, but less corrugated. Abdominal tergites uneven, not pitted, their posterior margins granulated. All femora entirely unarmed. Anterior tibiæ along their inner aspect covered with a dense brush-like mass of russet-coloured hair; beyond this brush, towards the upper aspect of the tibiæ, a few (about 5) spines; median and posterior tibiæ with two rows of about 4 spines each.

In smaller, i.e. probably younger, specimens we find distinct spines instead of the granulation along the posterior margins of the abdominal tergites. They are specially pronounced in a specimen, 20 mm. in length, in the Oxford Museum, from Sarawak (Wallace). The burrowing habit of this species probably causes the spines to be worn away in older specimens.

The brush on the anterior tibiæ of the ♀ seems to have escaped the notice of former observers. It is not found in the ♂, or only represented by a few scattered fluff-like hairs. Mr. Hamm has suggested to me that the brush may be of use to the ♀ for cleaning itself, and this seems a likely explanation. The insect is of a burrowing habit, but the work of burrowing is probably entirely done by the ♀ which, being apterous and having a stout body and a thick chitinous skin, appears much better adapted to it than the long-winged, slender-legged and altogether frail-looking ♂. A brush would thus not be required by the ♂, but would be very necessary to the ♀.

Genus **PROTAGONISTA** Shelford.

A.M.N.H. (8), Vol. I., p. 158 (1908); Genera Insectorum, fasc. 109, p. 22 (1910).

Shelford: Antennæ slightly incrassated. Eyes further apart than antennal sockets. True ocelli present. Pronotum almost rectangular, as long as broad, sides not deflexed, not covering vertex of head. Pronotum and tegmina with a fine erect pubescence. Tegmina and wings fully developed in the male (female unknown), exceeding the apex of the abdomen. Genital styles present. Cerci moderate. Legs slender; front femora with a complete row of spines on anterior margin beneath, none on posterior margin; mid and hind femora with only one spine on each margin. Spines on posterior tibiæ on outer aspect biseriately arranged. Posterior metatarsi very long, considerably exceeding the remaining joints in length; all the pulvilli apical; arolia minute.

Protagonista pertristis n.sp.

♀. Probably immature. Head black, very finely punctate; labrum, clypeus, and palpi testaceous; eyes testaceous, very slightly nearer than the antennal sockets. Antennæ black (terminal joints missing), pubescent. Pronotum quadrangular, somewhat longer than broad, not covering vertex of head, black, finely punctate, strongly pubescent at the anterior and lateral margins; margins all round thickened and raised, a deep semi-lunar depression across the anterior third,

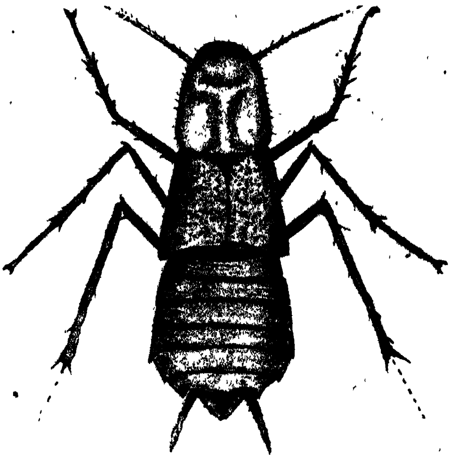

Fig. 28. *Protagonista pertristris* n.sp. ♀
× 2¾.

slightly continued towards the posterior angles, another depression just behind the anterior margin. Tegmina dark chestnut, deeply pitted, short, truncated, reaching to the second abdominal segment only, with their postero-lateral angles produced. Wings absent. Abdomen black, slightly shining, smooth, broadest at the fourth segment, suddenly narrowing from the fifth. Vulva strongly haired. Cerci long, orange-yellow, haired. Legs long and slender. Front femora with a comb-like series of about 11 spines on anterior margin ; mid femora with 2 spines on anterior, and 1 spine on posterior margin ; hind femora with 2 spines on anterior, and 1 or 2 spines on posterior margin (the specimen in question has 2 spines on the right, and one on the left femur). Hind tibiæ with the spines on outer aspect biseriately arranged. Hind tarsi missing. Front and mid tarsi long, about as long as the tibiæ, the metatarsus occupying nearly one-half of the entire length ; metatarsus spined, the remaining joints not armed.

♀. Total length 18 mm. ; pronotum 5·5 × 5 mm. ; tegmina 5 mm.

Hab: Semangko Pass, Malay Peninsula, 2700′ (R. Hanitsch, March 1912). One ♀ example. Type in Oxford Museum.

The only other known species of this genus is *Protagonista lugubris* Shelford, from Tonkin (A.M.N.H. (8), Vol. I., p. 158, pl. IX., fig. 1 (1908)), the type of which is also in the Oxford Museum.

Sub-family 6. PANCHLORINAE.

Leucophaea striata Kirby.

Leucophaea striata Hanitsch J., S B , R.A.S , No 69, p. 122 (1915)
Leucophaea striata Chopard. Mem. As. Soc. Bengal, Vol. VI (1919), pp. 358–363, pls. XII.–XIII., figs. 15–20.

Chopard gives a detailed re-description of this species from material collected by Annandale at the Batu Caves, Kuala Lumpur (January 2nd, 1916) and at Goah Glap, Bukit Tapang, Biserat, Jalor (February 4th, 1916). In the former locality Annandale found numerous specimens burrowing in bat's guano at the entrance to the caves, or crawling under sodden logs on the ground, whilst at Goah Glap the floor, chiefly composed of bat's guano, literally heaved with this species. (See also Annandale, Entom. Records, Vol XII, p. 75 (1900), and Mem. As. Soc. Bengal, Vol. VI. (1919), p. 343, footnote).

Sub-family 8. CORYDINAE.

Miroblatta petrophila Shelford.

Miroblatta petrophila Shelford. T.E.S. 1906, p. 272, pl. XIV., figs 4, 4a ; Gen. Ins., fasc. 109, p. 21 (1910).
Miroblatta petrophila Hanitsch. J., S.B., R.A.S., No. 69, p. 115 (1915).

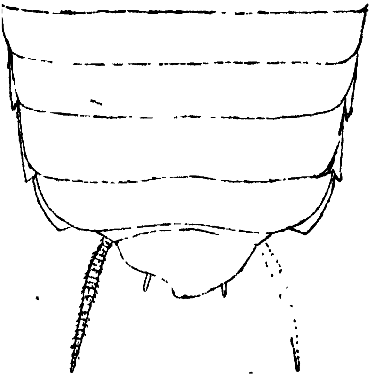

Fig. 29. *Miroblatta petrophila* Shelford. ♂
End of abdomen. Ventral view. × 3.

Shelford established the genus *Miroblatta* for this remarkable Blattid, from Mt. Santubong, Sarawak, and placed it amongst the Blattinæ, though the ♀ was unknown to him, and though the single ♂ obtained differed by its unarmed posterior femora from the typical members of that sub-family. Chopard (Mem. Asiat. Soc., Bengal, Vol. VI., p. 353 (1919)) described a few years ago a curious ♀ Blattid (*Miroblatta silphoides*) from the Batu Caves, Selangor, and pointed out its close relationship to *M. petrophila* Shelford. As he found its sub-genital lamina not to be valve-like, he removed *Miroblatta* from the Blattinæ to the Corydinæ and placed it near to *Homœogamia* Burmeister, from America.

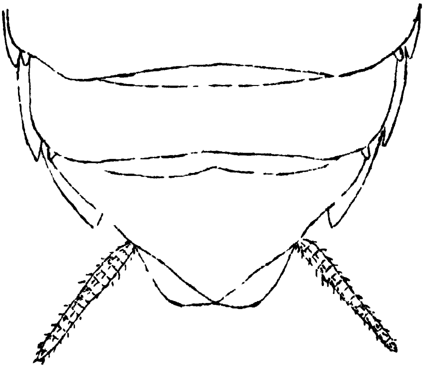

Fig. 30. *Miroblatta petrophila* Shelford. ♀
End of abdomen. Ventral view. × 3.

Through the courtesy of Dr. Eric Mjöberg, Curator of the Sarawak Museum, I have been able to examine a ♀ specimen of *M. petrophila* from Mt. Santubong, Sarawak, (August 1900), and this entirely confirms M. Chopard's opinion. The sub-genital lamina of the ♀ is not valve-like, but of the typical character of the Corydinæ, and the asymmetrical rounded ubgenital lamina of the ♂ also recalls that of a *Homœogamia* I therefore agree with Chopard in removing this genus from the Blattinæ to the Corydinæ. The ♀ specimen from Santubong is slightly larger than the ♂ type from the same locality, whilst another ♂, from Lio Matu, Ulu Baram (October–November 1914), also sent to me by Dr. Mjöberg, is smaller than the type

	♂ type Mt. Santubong.	♂ Lio Matu	♀ Mt. Santubong.
Total length	40 mm.	38 mm.	43 mm.
Tegmina	26 ,,	25 ,,	28 ,,
Pronotum	14 × 17 ,,	13·5 × 15 ,,	14·5 × 17·5 ,,

The tegmina of the ♂ type are of the length of the body, those of the other ♂ slightly exceed the abdomen, whilst those of the ♀ reach only to the base of the supra-anal lamina.

Dyscologamia chopardi n.n.

Miroblatta silphoides Chopard (nec Walker). Mem. Asiat. Soc. Bengal, Vol. VI., p. 353, pl. XII., figs. 10–14 (1919).

Chopard [much abbreviated] : ♀ : Assez grande espèce, noirâtre, à facies de Coléoptère ; pattes, antennes et pièces buccales brun foncé, un peu roussâtre ; clypéus présentant une bande blanchâtre très nette. Toute la surface du corps couverte d'une assez fine ponctuation et d'une pubescence rousse, très courte et serrée ; sur le pronotum cette pubescence est portée par de petits tubercules arrondis, luisants.

Tête entièrement cachée sous le bord antérieur du pronotum, assez étroite, brun noirâtre avec les pièces buccales rousses et une bande blanche divisant le clypéus en deux parties presque égales. . . . Pronotum très grand, large, à surface très bombée, avec deux profondes impressions longeant le bord antérieur sur presque toute sa longueur ; bord antérieur très convexe, bord postérieur presque droit, angles postérieurs subaigus ; toute la surface est couverte de petits tubercules arrondis, luisants, plus volumineux et plus épars au fond des impressions latérales ; pubescence rousse, couchée et assez rare sur le disque, dressée, un peu plus longue et plus abondante le long du bord antérieur.—Elytres un peu plus courts que l'abdomen, à surface assez bombée, couverte d'une fine ponctuation et d'une courte pubescence rousse, couchée ; la côte est très saillante et, en dessous, près de la base, un repli vient couvrir en partie les épisternes et épimères métathoraciques, formant une sorte d'épipleure rudimentaire. Bord antérieur presque droit à la base, convexe ensuite ; bord interne presque droit, apex arrondi ; à l'elytre droit, la partie du bord interne recouverte par l'autre élytre est lisse, amincie, présentant une faible réticulation irrégulière vers l'apex. La nervation est réduite à une forte nervure située vers le tiers antérieur de l'élytre et se perdant rapidement, les nervures habituelles sont simplement indiquées par les stries formées par la ponctuation et sont surtout visibles vers l'apex de l'elytre. Ailes peu développées, presque réduites à leur partie antérieure ; celle-ci est assez grande, à bords convexes, apex arrondi, de couleur jaunâtre, rembrunie le long des bords antérieur et interne ; les nervures sont très marquées, épaisses à la base, mais arrivant à se perdre vers l'apex dans une réticulation large et irrégulière. Veine médiastine simple ; humérale trifurquée ; veine discoïdale sinuée à la base, portant 3 rameaux dont l'antérieur trifurqué et le median bifurqué. Champ postérieur très petit, atrophié, occupé par 4 nervures dont la 1re bifurquée.

Length of body 25·5 mm. ; pronotum 9·5 × 14 mm. ; tegmina 16·5 mm.

Hab : Batu Caves, Kuala Lumpur (N. Annandale, January 2nd, 1916) ; burrowing in bat's guano among stones, at entrance to caves. One ♀. Type in the Indian Museum, Calcutta.—A second example of this species, also ♀, in the Collection Finot (Paris Museum), from Borneo.

Dr. Chopard (in lit.) agrees with me that this species is to be removed from *Miroblatta* Shelford, to *Dyscologamia* Saussure, and as the specific name, given by Chopard, is preoccupied by *D.* (= *Polyphaga*) *silphoides* Walker, from Cambodia (Mouhot), the type (♀) of which is in the Oxford Museum, I propose the name of *D. chopardi* for it.

A specimen, ♀, also from the Batu Caves, Selangor, collected by Dr. E. Mjöberg and kindly sent to me for examination, apparently belongs to the same species. The chief difference from the other species of this genus seems to be the shortness of the tegmina of the ♀ which reach only to the base of the supra-anal lamina. The ♂ is unknown.

Corydia forceps Hanitsch.

Corydia forceps Hanitsch. J., S.B., R.A.S., No. 69, p. 125, pl. VII., fig 41 (1915).

The type of this species, a single ♂, came from Bukit Kutu, Selangor, where I took it in April 1915. An unnamed example, also ♂, in the Oxford Museum collection, taken by Mr. Ridley in the Botanic Gardens, Singapore, August–September 1906, belongs to the same species.

Holocompsa debilis Walker.

Holocompsa debilis Hanitsch. J., S.B, R A S, No 69, p. 128 (1915); Treubia, Vol. III, p. 211 (1923).

The Oxford Museum contains specimens from Sarawak, including Walker's type, from Prince of Wales' Island (i.e. Penang), and from Kandy, Ceylon (Dr. G. B. Longstaff, 1908). I have recorded this species from Buitenzorg, Java (Karny and Siebers, 1920).

Sub-Family 9. OXYHALOINAE.

-**Diploptera dytiscoides** Serville.

Diploptera dytiscoides Hanitsch. J., S.B, R.A.S, No 69, p 133, pl. VI, fig. 31 (1915); Treubia, Vol III., p 212 (1923).

As I pointed out in the " Treubia " (l.c.), this species seems to be more widely distributed than I supposed in my former paper. Serville's type came from Australia, and Brunner recorded it from Burma and Tahiti. The Oxford Museum has specimens from Honolulu (Blackburn), Buru (Mouhot), Sarawak (Wallace), Manila,* and Ceylon (Thwaites, 1872). I took it on Fort Canning, Singapore (February 1915) and on Gunong Kledang, Perak (November 1916).

Distribution: Ceylon; Burma; Malay Peninsula; Singapore; Sarawak; Philippines; Buru; Australia; Honolulu; Tahiti. According to Morgan Hebard† common and injurious on Hawaii, doing particular damage by gnawing away the bark of certain Cypress trees.

Chorisoneura lativitrea Walker.

Chorisoneura lativitrea Hanitsch. J., S.B., R.A.S., No. 69, p. 134 (1915).

This species had so far been known from Cambodia and Sarawak only, but the Hon. C. J. Saunders took recently a ♀ example at Singapore (June 1922). This specimen shows well the "deep ochraceous band on the fore part of the vertex," mentioned by Walker. The band extends from eye to eye.

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* Not Madras, as I erroneously stated in J., S.B., R.A.S., No. 69, p. 133.

† Dermaptera and Orthoptera of Hawaii. In " Occ. Papers, Bernice Pauahi Bishop Museum," Vol. VII., p. 336 (1922).

♀. Total length 10 mm.

Areolaria fieberi Brunner von Wattenwyl.

Areolaria fieberi Hanitsch. J., S.B., R.A.S , No. 69, p. 136 (1915).

Brunner's somewhat meagre description may be amplified as follows:

Head castaneous, shining. Eyes black, far apart. Antennæ slightly plumose; their basal half, or less, black; distal half testaceous, except for the last few joints which are black Pronotum sub-quadrate to round, punctate, castaneous, laterally with a pale border, with yellowish pubescence. Tegmina castaneous, mediastinal area yellowish, seriato-punctate, with yellowish pubescence.

Total length 9 mm.

Readily distinguished from *A. signata* Shelford, by the absence of a light central vitta on the pronotum, and by the absence of a fuscous stripe across the tegmina.

Hab: Previously recorded from Java (Brunner) and Penang (Kirby). Since taken again on Penang Hill by myself (May 1917), and by Prof. C. J. Baker at Singapore, 1917.

Genus **PROSOPLECTA** Saussure.

Saussure, Revue de Zoologie (2), Vol. XVI , p. 325 (1864) ; Mém. Hist. Nat. Mexique, Vol. I., p. 169 (1864).

Shelford, P.Z.S., pp. 358–376, pl. XLVIII. (1912).

Saussure: "Corps ovoïde ou globuleux, très bombé. Prothorax elliptique, ayant son bord antérieur subexcisé, offrant de chaque côté un lobe revelé; tête débordante.

Elytres cornés, dénués de sillon anal, très-bombés et luisants, sans nervures distinctes, mais occupés par des lignes de ponctuations; le champ anal presque carré ou subcirculaire.

Ailes amples, ayant seulement leur extremité repliée en dessus, et suivant un pli transversal oblique; la portion réfléchie antérieure, plissée en outre de manière à former un pli longitudinal rentrant. La portion basilaire occupée par des nervures nombreuses infléchies symétriquement à l'extremité vers les marges; pas de nervures transversales bordant la charnière. La portion réfléchie, en forme de coin triangulaire, demi-coriacée, dénuée de nervures, le pli longitudinal seul marqué par une ligne cornée. La portion basilaire de la zone renversée formant une partie du bord postérieur de l'aile ; l'énchancrure anale peu prononcée, tombant à la limite des deux portions de la zone renversée et non à la limite de la zone renversée et de la zone rayonnée.

Facies des Coléoptères de la famille des Chrysomélines (*Coccinella*).

Prosoplecta dexter-alleni n.sp. (Plate XIII, fig. 11.)

♂. Head not covered by the pronotum, testaceous, lower part of face reddish ; antennæ filiform, equalling the body in length, light brown, darker distally. Pronotum elliptical, disc reddish-brown, margin sulphur-yellow. Tegmina castaneous, not shining, with the mediastinal area, three round maculæ and seven longitudinal striæ on either tegmen sulphur-yellow, one of the maculæ being placed in the humeral angle, a second close to the inner margin of the mediastinal vein, and a third at the same level, but closer to the middle line of the body ; the seven striæ which enclose a few less distinct ones, being confined to the distal half of the tegmina. A minute flattened tubercle just behind the humeral macula. Abdomen and legs reddish brown.

♂ : Total length 7 mm. ; length of tegmina 4 mm. ; pronotum 2 × 2·5 mm.

Hab : Seremban, Malay Peninsula (Rev. G. Dexter Allen, October 25th, 1917). One example, ♂. Type in the Oxford Museum.

This is the first species of *Prosoplecta* recorded from the Malay Peninsula, the genus having so far been known only from the Philippines, Celebes, Batchian and Ceram. Shelford (P.Z.S., 1912, p. 368) points out the wonderful examples of mimicry of the species of this genus with Coccinellid and Chrysomelid beetles.

Sub-family 10. PERISPHAERINAE.

Perisphaeria armadillo Serville.

Perisphæria armadillo Hanitsch. J., S.B., R.A.S., No. 69, p. 142, pl. VII., fig. 39 (1915) ; Treubia, Vol. III., p. 213 (1923).

The type of this species came from Java. There are in the Oxford Museum specimens from Singapore, Amboina, Aru and New Guinea, all collected by Wallace, and in the Buitenzorg Museum specimens from Hoorn and Edam, Bay of Batavia, and Klein Kombuis, Java Sea, taken by Dammerman, 1919 and 1920. I took it on Bukit Kutu, Selangor, April 1915, and on Gunong Kledang, Perak, November 1916.

This species, with its yellowish head, is readily distinguished from the closely allied *P. glomeriformis*, Lucas, in which the head is black.

Perisphaeria lucasiana Saussure and Zehntner.

Perisphaeria lucasiana Hanitsch. J., S B, R.A S., No. 69, p. 143 (1915).

Originally recorded from Java. The Oxford Museum contains three specimens, all ♀, two of which were collected by Wallace on Mt. Ophir, Malay Peninsula. The third specimen is without locality label. The ♂ seems to be unknown.

Pseudoglomeris aterrima Herbst.

Blatta aterrima Herbst. Fuessly Arch. Insekt. p. 185, pl. XLIX., fig. 9 (1786).
Derocalymma atra Brunner. Nouv. Syst. Blatt. p. 321, pl. IX., fig. 41 (1865).
Pseudoglomeris aterrima Kirby. Syn. Cat. Orth. Vol. 1. p. 190 (1904).

Brunner: 'Tota atra. Pronoto supra caput cucullato, disco gibbo, dense impresso-punctato. ♂.

♂. Long. corp. 16 mm.; long. pronoti: 4·8 mm.; pron. transv. 7·5 mm.; elytr.: 16 mm.

Java (Musée de la Novara).

– **Pseudoglomeris flavicornis** Burmeister.

Pseudoglomeris flavicornis Hanitsch. J., S.B., R.A.S., No. 69, p. 143 (1915); Treubia, Vol. III., p. 213 (192).

This species, originally described from Java, has been recorded by Kirby from Tenasserim and Cambodia, by Annandale from Rámanád, S. India, and by Bolivar doubtfully from Trichinopoly, Madras Presidency. The Oxford Museum has specimens from Bombay, Madras, Sylhet, Mouhot and Assam, and the Buitenzorg Museum, besides specimens from Java, also an unusually large ♀ from Borneo (1912). It measures: body 24 mm.; pronotum 8·5 × 12 mm., against the average of 16 mm. for the body, and 5 × 7·5 mm. for the pronotum. Its colour, however, is normal, viz. body black; antennæ, palps, tarsi and cerci orange. Burmeister's description of "tibiis . . . testaceis" is evidently an error for "tarsis . . . testaceis."

Hab: India; Assam; Tenasserim; Cambodia; Java; Borneo.

Pseudoglomeris flexicollis Walker.

Pseudoglomeris flexicollis Hanitsch. J., S.B., R.A.S., No. 69, p. 144 (1915).

This species is known by a single specimen, ♂, the type, which was collected by Wallace at Singapore and is now in the Oxford Museum.

The "♀" in Walker's description (Cat. Blatt. Brit. Mus. p. 187) is an obvious misprint for "♂," which error I had unfortunately copied in my former paper.

The measurements are:

♂: Total length 24 mm.; body 22 mm.; pronotum 7 × 9 mm.; tegmina 17 mm.

– **Pseudoglomeris planiuscula** Brunner von Wattenwyl.

Pseudoglomeris planiuscula Brunner. Révision Syst. Orth., p. 44 (1893).

Pseudoglomeris planiuscula Sauss. and Zehnt. Rev. Suisse Zool. Vol. III., p. 41, pl. I., fig. 14 (1895).

Pseudoglomeris planiuscula Kirby. Syn. Cat. Orth. Vol. I., p. 190 (1904).

Brunner: ♀. Atra opaca, dense punctulata. Caput totum atrum, punctatum. Antennæ, palpi et labrum læte ferruginei. Pronotum minus fornicatum, margine non reflexo sed limbato. Pedes nigri. Cerci ferruginei.

♂ differt a specie præcedenti [i.e. *P. fornicata* Brunner] pronoto planiore, alarum ramis venæ ulnaris obliquioribus.

	♂	♀
Long. corporis	15 mm.	19 mm.
Long. pronoti	4 ,,	5·5 ,,
Lat. pronoti	6 ,,	10 ,,
Long. elytrorum	16 ,,	—

***Patria*:** Carin Chebà; Bhamo; Catcin Cąuri; M^t Mooleyit, 1000–1300 metres.

Saussure and Zehntner reported it from Burma too, and Kirby from Tonkin.—The Oxford Museum has a ♀ specimen from Malacca (Castelneau, 1862), which Shelford had compared with the type.

Genus **DOLICHOSPHAERIA** n.g.

♀. Body elongated, with parallel sides. Anterior femora spined. Claws without arolium. Apterous.

♂. Unknown.

This genus is closely allied to *Gynopeltis* Gerstæcker, from East Africa, which, however, is of a broad elliptical or subovate shape; but these two genera agree by their anterior femora being spined and by the absence of an arolium.

Glyptopeltis Saussure, from Java, whilst resembling it by its spined femora, differs from it by the presence of an arolium and by its sub-ovate shape. Other genera of this sub-family distinguished by the absence of an arolium are *Paranauphœta* Brunner and *Gymnonyx* Saussure and Zehntner.

Dolichosphaeria arcuata n.sp.

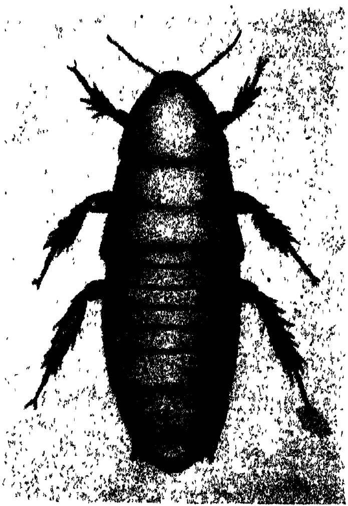

Fig. 31. *Dolichosphæria arcuata* n.g. and sp. ♀ × 2.

♀. Black, shining. Head partly free, light castaneous, with a darker triangular blotch between the bases of the antennæ. Antennæ fawn coloured, somewhat exceeding the pronotum in length. Pronotum parabolic, faintly punctured; meso- and metanotum distinctly punctured, abdomen still more so. Abdominal tergites with transverse sulcus. The latero-posterior angles of the 6th and 7th tergites with spines. Supra-anal lamina large, with a spine immediately behind each cercus, its posterior margin thickened and raised. Cerci very short, triangular, shining. Legs castaneous. Anterior femora with two closely placed spines near the middle of the inferior border, and a third spine on the outer aspect of the distal end. Median and posterior femora not armed. A few scattered setæ on the inferior border of the anterior and median femora, none on the posterior femora. Tibiæ strongly armed, spines in 3 rows. Metatarsus slightly longer than the remaining joints. Claws without arolium. Entirely apterous.

Total length 28 mm.; greatest width 10·5 mm.

Hab: Bukit Timah, Singapore, 300′. One ♀ example (R. Hanitsch, August 1912). Type in the Oxford Museum.

Dolichosphaeria deplanata n.sp.

♀. Black, shining. Head partly free, light castaneous, with a darker band between the bases of the antennæ. (Antennæ missing). Pronotum parabolic, slightly punctured, with a median depression, the posterior border of which is raised into two closely placed tubercles. Meso- and metanotum slightly punctured, abdomen distinctly so. Abdominal tergites with transverse sulcus, the latero-posterior angles of the 6th and 7th tergites drawn out into sharp spines. Supra-anal lamina large, its latero-anterior margin on either side drawn out into a spine, posterior margin thickened and raised. Cerci very short, triangular, shining. Legs castaneous. Anterior femora on the inferior border with a dense row of setæ and with two closely placed spines near the middle of the inferior border, and a third spine on the outer aspect of the distal end. Median femora with a similar row of setæ, but without spines. Posterior femora with neither setæ or spines. Tibiæ strongly armed, spines in 3 rows. Metatarsus slightly longer than the remaining joints. Claws without arolium. Entirely apterous.

♀. Total length 30 mm.; greatest width 13 mm.

Hab: Gunong Kledang, Perak, 2646′. One example ♀. (R. Hanitsch, November 1916). Type in the Oxford Museum.

Differs from *D. arcuata* by the depression on the pronotum, by the greater development of the setæ on the anterior and median femora, and by its larger size.

Sub-family 11. PANESTHINAE.

Salganea morio Burmeister. (Plate XIII, fig. 12).

Salganea morio Hanitsch. J., S.B., R.A.S., No. 69, p. 145 (1915); Treubia, Vol. III. p. 213 (1923).

The specimen (♀) figured is the one referred to in my former paper and was taken by Mr. J. A. le Doux at Kota Tinggi, Johore, May 1915.

Salganea rugulàta Saussure.

Salganea rugulata Hanitsch J., S.B., R.A.S., No. 69, p. 146 (1915) ; J., F.M.S. Museums, Vol. VIII., part 3, p. 70 (1919).

Originally recorded from Java. Since taken by Messrs. Robinson and Kloss at Sungei Kumbang, Korinchi Peak, Sumatra, 4600′, April 1914, and by myself on the Malay Peninsula, viz. on Bukit Kutu, 3400′, April 1915, and on Kedah Peak, 3000′, December 1915.

Panesthia hilaris Kirby. (Plate XIII, fig. 13.)

Panesthia hilaris Hanitsch. J., S.B., R.A.S., No. 69, p. 153 (1915).

The specimen (♂) figured is the one referred to in my former paper. I took it at Changi, Singapore, August 1896.

– **Panesthia nicobarensis** Saussure.

Panesthia nicobarensis Sauss Rev. Suisse Zool , Vol. III., p. 316 (1895).

Panesthia nicobarensis Kirby. Syn Cat. Orth. Vol. I., p 203 (1904).

Saussure : Sat magna, nigra. Antennæ basi nigræ, dehinc ferrugineæ. Vertex ♂ foveolatus. Pronotum valde excavatum, lævigatum, utrinque sparse punctatum, disco valde bituberculato, area antica granulosa : Margo anterior ♂ quadrato-excisus, angulis rotundatis, productis, reflexis ; ♀ transverse excisus, angulis rotundatis, parum productis ; margine pone incisuram carinato, ♂ leviter angulato. Elytra truncata, primum abdominis segmentum tegentia ; angulo costali rotundato ; sulco anali nullo margine costali recto, haud exciso. Abdomen remote parum profunde, modice grosse punctatum. Lamina supra-analis brevissime crenata, dentibus 6 remotis ac utrinque dente majore. Femora antica 2–3 spinosa.

Long. ♀ 42, ♂ 48 ; pronot. ♀ 12–12·5, ♂ 9·5–10 ; lat. ♀ 17·5, ♂ 14·5 ; elytr. ♀ 16, ♂ 13 mm.

Insulæ Nicobarenses.

Pourrait être une variété à élytres tronqués de la *P. javanica* Serv. ; cependant les cornes du pronotum ne sont pas arquées en dedans ni pointues comme chez cette espèce, mais arrondies et réfléchies. Chez la femelle l'énchancrure du bord antérieur est bien plus prononcée ; les tubercules du disque aussi sont beaucoup plus forts."

— **Panesthia saussurii** Stal.

Panesthia saussurii Stål. Öfver. K. Vet. Akad. Förh, Vol. XXXIV. (No. 10) p. 37 (1877).

Panesthia saussurei Saussure. Rev. Suisse Zool. Vol. III., p. 312 (1895).

Panesthia saussurei Kirby. Syn. Cat Orth. Vol 1, p 202 (1904).

Panesthia saussurei Karny. Suppl. Entom. No IV., p. 90 (1915)

Panesthia saussurii Hanitsch. Treubia, Vol. III, p. 214 (1923).

I had accidentally omitted this widely distributed species in my former paper on "Malayan Blattidæ." Stal's description is as follows:

P. javanicæ simillima, sed minor, lateribus pronoti fortius punctatis, elytris anterius punctis subtilibus raris conspersis, abdomine minus dense punctato, angulis apicalibus laminæ supraanalis obtusioribus; femora antica variant inermes, vel spinis duabus vel una armata. ♂ ♀. Long. corp. 26–32 mm.

Philippines.

Saussure: Sat minuta. *P. javanicæ* Serv. simillima. Vertex ♂ foveolatus. Pronotum ♂ cornigerum, utrinque crasse punctatum, tuberculis disci minimis, granuliformibus. Elytra polita. Abdomen crasse remote punctatum; 7^i segmenti dentes acuti. Lamina supraanalis crenulis 5, angulis plus minus acutis. Femora antica spinis 1–3. Long. 29; pronot. 6; latit. 8·5; elytr. 24 mm. India orientalis; Sink.

Karny (l.c.) records this species from Formosa, and I have shown (l.c.) that it has a wide distribution, similar to that of *P. javanica.* The Oxford Museum has specimens from Selangor (H. C. Pratt), Borneo (Burr, Shelford), Java, the Philippines, Dutch New Guinea (H. C. Pratt), and New South Wales (J. J. Walker), whilst in the Buitenzorg Museum there are examples from Korintji, Sumatra; Mt. Gedeh, W. Java; Tengger, E. Java; North Borneo; Ceram, and New Guinea. In the same paper I drew attention to the great variation in the number of spines of the anterior femora of this species, viz. from nil to 5, and to these variations occurring not only between different individuals, but, to a less degree, even between the two sides of the same individual.

Panesthia shelfordi n.sp.

♂. Head, antennæ, body and legs entirely black. Tegmina slightly exceeding the abdomen; their proximal half pale testaceous; distal half piceous, with a pale testaceous spot near the anterior border, at about two-thirds of the entire distance from the base of the tegmen. Wings: proximal half of the anterior part transparent pale testaceous, distal half piceous; anal portion of wings almost uniform infuscated, but lighter near the base. Anterior femora without spines. Pronotum anteriorly on either side drawn out into horns which bend inwards and embrace in front the head to about one-quarter of its width on either side. Anterior half of the pronotum with a deep depression, divided by a longitudinal ridge into a left and a right portion; posterior half of the pronotum deeply punctured. Mesonotum, metanotum, and abdomen both above and below, deeply punctured. Supra-anal lamina slightly crenulated.

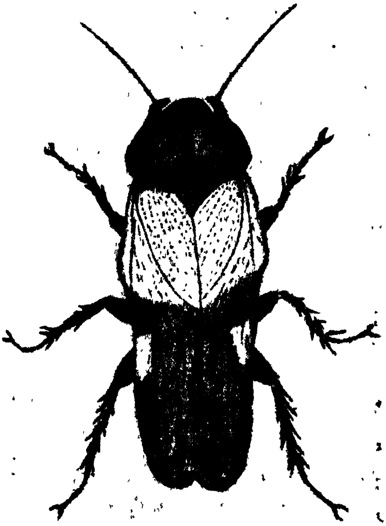

Fig. 32. *Panesthia shelfordi* n.sp. ♂ × 2.

Total length: ♂: 26 mm.; body 25 mm.; pronotum 6·5 × 9 mm.; tegmina 21 mm.

Hab: Mt. Penrissen, Sarawak (R. Shelford, May 1899). One example, ♂. Type in the Oxford Museum.

Nearest to *P. regalis*, Walker, from Assam, but smaller, and differing by the pale testaceous spot in the dark distal half of the tegmina.

Miopanesthia discoidalis Saussure.

Miopanesthia discoidalis Hanitsch. J., S.B., R.A.S., No. 69, p. 157 (1915).

I provisionally place under this species three specimens, all ♀♀ and all approximately from the same altitude, though from different localities, viz., one ♀ from Kedah Peak, Malay Peninsula, 3000′ (December 1915), one ♀ from Bukit Kutu, Selangor, 3000′ (April 1915), both collected by myself, and one ♀ from Masarang Mt., North Celebes, 3000′–4000′, taken by Charles Hose (October 1895) and now in the Oxford Museum.

The specimen from Kedah Peak may be described as follows: General colour dark castaneous to piceous. Head castaneous, labrum testaceous, antennæ light castaneous Anterior margin of the pronotum slightly reflected, behind it a triangular depression reaching to the middle of the pronotum, then a protuberance which is smooth and only slightly punctured, whilst the rest of the pronotum is densely punctured. Mesonotum and metanotum smooth, with numerous punctures. First five abdominal segments each with two somewhat irregular transverse rows of punctures, one of which is closely applied to the anterior margin, whilst the other runs across the middle; each segment posteriorly with a sulcus which is perfectly smooth. Sixth abdominal segment with more numerous, coarser and less regularly arranged punctures, its latero-posterior angle drawn out in very short and blunt teeth; seventh abdominal segment darker, almost piceous, about twice as broad as the anterior segments, densely and coarsely punctured, its posterior angles drawn out into sharp teeth, its sides with a slight protuberance just in front of the tooth. Supra-anal lamina almost as broad as the 7th segment, piceous, densely and coarsely punctured, with a large tooth on either side, and between them, occupying the whole posterior margin, a row of 16 small teeth, symmetrically arranged. Legs reddish castaneous, anterior femora unarmed. Legs and underside of the abdomen with a few scattered hairs. Tegmina short, sub-quadrate, reaching only just beyond the metanotum.

Total length 19·5 mm.

The specimen from Bukit Kutu differs from the one just described by the following characters: Less dark in colour, especially the first five abdominal tergites light castaneous;

a slight pubescence at the sides of the first five abdominal tergites, which is much more marked over the whole surface of the 6th and 7th tergites and on the supra-anal lamina. Supra-anal lamina asymmetrical: the large lateral teeth are present, but whilst the left half of the posterior margin bears 10 small teeth, the right half is smooth, possibly a deformity. Otherwise the specimen agrees with the one from Kedah Peak, especially by its unarmed anterior femora and its short tegmina reaching only to the posterior border of the metanotum.

Total length 20 mm.

The Celebes specimen agrees with the one from Kedah in its general colour, though the legs are somewhat darker, and in the almost entire absence of pubescence. It differs from it by the lateral angles of the 6th segment not being drawn out into spines, and by the posterior margin of the supra-anal lamina bearing, in addition to the two large ones, only 10 small teeth which are symmetrical. Its tegmina reach to the end of the 1st abdominal segment. Anterior femora not spined.

Total length 22 mm.

Dicellonotus monstruosus Wood-Mason.

Panesthia monstruosa W M., J. As. Soc Bengal, Vol. XLV. (2), p. 189 (1876); A M.N.H. (4), Vol. XIX., p. 117 (1877).

Panesthia monstruosa Sauss Rev Suisse Zool, Vol III, p. 311 (1895)

Dicellonotus monstruosus Kirby. Syn. Cat. Orth. Vol. I., p. 201 (1904).

Wood-Mason: Ingens, aptera, aterrima, nitida. Corpore crassissimo. Tegumento valde indurato. Pronoto in maribus valdissime, in fœminis modice, inæquali et impresso; bituberculato; incisura profunda, lata, medio recta et linea elevata marginata, lateribus cornigera, cornubus in mare magnis, in femina modicis, reflexis, apice plicatis. Abdominis segmentis basalibus infraque supraque sparsim minute punctatis, ultimo laminaque supraanali punctis crebrioribus necnon grandioribus conspersis hac postice 5-dentata. Pedibus validis, spinis tibialibus fortibus armatis; femoribus anticis trispinosis. Long. corporis maris 58 mm.; pronoti $14\frac{1}{8}$, pronoti lat. $19\frac{1}{8}$, incisuræ lat. 6; mesonoti long. 9, mesonoti lat. $21\frac{3}{8}$; metanoti long. **8**, metanoti lat. **23**; abdom. long. **30**, abd. lat. (ad medium) **23**. Long. corp. fem. **52**.

Hab: A male and a female from Southern India (R. C. Beddome).

Wood-Mason adds: "This fine insect offers a curious resemblance to the *Gromphadorhina portentosa* Schaum, from Madagascar." However, the resemblance is only a superficial one, as the latter species belongs to the Perisphærinæ.

Saussure (loc. cit.), in re-describing *D. monstruosus*, gives as additional locality "Singapore" (Geneva Museum). He adds that the tubercles of the disk much resemble those of *Salganea morio*, whilst the rugosities of the abdomen recall those of *P. stellata* Sauss., from Sikkim.

Geographical Distribution of the Malayan Species of Blattidæ.

The following table is a list of the Blattidae so far described from the Malayan sub-region, a total of 234 species, representing an increase of 50 species as compared with my former list. Of these, 116 species have been recorded from the Malay Peninsula, 115 from Borneo, 76 from Java and only 38 from Sumatra, whilst not less than 170 species seem to be peculiar to this sub-region. Extensive material which reached me from the Raffles Museum, from the F. M. S. Museums, from Sarawak and Buitenzorg whilst this paper was nearing completion and which could not be incorporated, will, no doubt, add considerably to the number of species, and equalize somewhat the proportion of the forms known from the four great divisions of this sub-region.

The first two columns of the table give the references to the pages in this and the former paper in which the descriptions are found.

I.	II.		Malay Peninsula.	Sumatra.	Java.	Borneo.	Other localities.
		Sub-family 1. ECTOBINAE.					
26	395	*Theganopteryx apicigera* Walker	×	×	×	×	
27		*Hemithyrsocera histrio* Burm.	×	×	×	×	Celebes.
28	395	„ *lateralis* Walker	×				India; Burma; Siam
28	395	„ *palliata* Fab.	×	×			Ceylon; India; Indo-China; China.
	396	„ *ridleyi* Shelf.	×				
29	396	„ *soror* Brunner	×		×		Celebes.
29		„ *tessellata* Rehn	×				
32		*Anaplecta borneensis* Shelf.				×	
32		„ *javanica* Sauss.			×		
31		„ *malayensis* Shelf.	×				
31		„ *obscura* Shelf.	×				
	396	„ *vittata* n. sp.	×				

I.	II.		Malay Peninsula.	Sumatra.	Java.	Borneo.	Other localities.
		Sub-family 2. PHYLLODROMIINAE.					
36		*Pseudothyrsocera bicolor* Shelf.				×	
35		,, *montana* Shelf.				×	
36		,, *moultoni* Hanitsch.				×	
34		,, *pica* Walker	×	×			
35		,, *ruficollis* Shelf.	×			×	
34	397	,, *scutigera* Walker	×			×	
38	398	*Ischnoptera cavernicola* Shelf.				×	
38		,, *excavata* Shelf.				×	
	398	,, *indica* Brunner	×				
39		,, *montis* Shelf.				×	
37	398	,, *reversa* Walker	×				
39		,, *ridleyi* Shelf.	×				
	399	*Phyllodromia abrupta* n. sp.	×				
	400	,, *adversa* S. and Z.			×		
44		,, *aliena* Brunner	×				Burma.
	400	,, *amplectens* Walker	×				Morty.
50		,, *anceps* Krauss			×		
40		,, *bivittata* Serville	?	?	?	×	Cosmopolitan
	402	,, *castanea* Brunner				×	
45	402	,, *contingens* Walker	×		×	×	
	403	,, *curvinervis* S. and Z.			×		Burma.
	404	,, *diagrammatica* Hanitsch.	×				
55		,, *elegans* Walker				×	
43		,, *funebris* Walker				×	
45		,, *germanica* L.	×	×	×	×	Cosmopolitan
43	406	,, *hamifera* Walker	×			×	
54		,, *hewitti* Shelford				×	
46		,, *irregulariter-vittata* Brunner.			×	×	
41	406	,, *laterifera* Walker	×			×	
42	407	,, *latius-vittata* Brunner	×		×		Celebes
42		,, *longe-alata* Brunner				×	
	407	,, *luteo-marginata* n. sp.	×				
53		,, *marmorata* Walker	×				
52		,, *megaspila* Walker			×	×	
	408	,, *molesta* Brunner			×		
51	409	,, *nebulosa* Shelford				×	
		,, *nigrocincta* Chopard	×				
57	410	,, *nimbata* Shelford	×			×	
		,, *nitens* Brunner				×	
	410	,, *nodosa* Fritze			×		
49	411	,, *notulata* Stål	×		×	×	Cocos Keeling I.; Tahiti.
51		,, *obtusifrons* Walker				×	
55		,, *picteti* Fritze			×		
54		,, *picturata* Shelford				×	
49	411	,, *polygrapha* Walker	×			×	Siam.
49		,, *puncticollis* Brunner				×	
		,, *quadri-punctata* Hanitsch	×				
57	411	,, *rectangulariter-vittata* Brunner				×	
	412	,, *rubro-nigra* n. sp.	×				

I.	II.		Malay Peninsula.	Sumatra	Java.	Borneo.	Other localities.
44		*Phyllodromia ruficeps* Kirby	×				S. Africa.
46		,, *secura* Krauss			×		
	413	,, *stellata* n. sp.	×				
	413	,, *subgenitalis* Fritze.		×			
56		,, *supellectilium* Serville	?	?	?	?	Christmas I.; Cosmopolitan.
	414	,, *terminalis* Brunner				×	
41		,, *triangulariter-vittata* Brunner				×	
48		,, *variegata* Brunner			×		
	414	,, *vilis* Brunner					Formosa
47	415	,, *virescens* Walker	×			×	
	416	*Liosilpha lata* n. sp.	×			×	Ceylon
	417	,, *longe-alata* n. sp.			×		
	417	,, *picea* n. sp.				×	
58		*Duryodana palpalis* Walker				×	
60	417	*Pseudophyllodromia laticeps* Walk.	×	×			
59		,, *pulcherrima* Shelf				×	
	418	,, *sex-punctata* n. sp.	×				
62		*Ceratinoptera fulva* Brunner			×		
	419	,, *klossi* Hanitsch		×			
62		,, *sundaica* Fritze			×		
63		*Allacta parva* Shelf.				×	
	420	,, *similis* Saussure					Cocos Keeling I.; Hawaii
		Sub-family 3. NYCTIBORINAE.					
		None.					
		Sub-family 4. EPILAMPRINAE.					
64		*Phlebonotus pallens* Serville			×		Ceylon; Bengal; Assam.
66	422	*Morphna badia* Brunner	×	×			Nias; Peninsular Siam.
	420	,, *dotata* Walker	×			×	Peninsular Siam.
65		,, *maculata* Brunner	×		?	×	
67	423	*Homalopteryx adusta* Walker	×		×	×	
67		,, *major* Saussure			×		
68		*Compsolampra liturata* Serville			×		China.
71	424	*Apsidopis cyclops* Saussure				×	
70	424	,, *oxyptera* Walker	×			×	
69		,, *wallacei* Shelford				×	
	424	*Pseudophoraspis emarginata* n. sp.				×	
73		,, *miranda* Shelford				×	
72	425	,, *nebulosa* Burm.	×	×	×	×	
73		*Rhabdoblatta buqueti* Serville			×		
74		,, *javanica* Saussure			×		
77	426	,, *obtecta* Hanitsch	×				
76		,, *parvicollis* Walker				×	
75	426	,, *pfeiferæ* Brunner	×	×		×	
77	426	,, *procera* Brunner		×	×	×	Nias.
75		,, *structilis* Rehn.		×			

I.	II.		Malay Peninsula.	Sumatra.	Java	Borneo.	Other localities.
88		*Epilampra albina* Saussure.			×		
	427	,, *angusta* Hanitsch.			×		
84		,, *circumdata* Hanitsch	×				
86		,, *deflexa* Saussure			×		
	428	,, *doleschali* Brunner				×	
82		,, *dytiscoides* Hanitsch	×				
84		,, *flavomarginata* Shelf.				×	
	427	,, *funebris* n sp.				×	
87		,, *geminata* Brunner				×	
83		,, *goliath* Shelford				×	
82		,, *imitans* Brunner	×				Tenasserim
85		,, *inclarata* Walker				×	
89		,, *lævicollis* Saussure			×		
85	429	,, *lurida* Burm		×	×	×	India ; Celebes.
	430	,, *lyrata* n sp	×				
91		,, *moloch* Rehn					
	429	,, *moultoni* n sp.				×	
79	430	,, *plena* Walker	×			×	Celebes ; N. Guinea
80	431	,, *puncticollis* Walker	×			×	
78		,, *quadrinotata* Walker				×	
86		,, *ridleyi* Kirby	×				
83	431	,, *saravacensis* Shelford	×			×	
89		,, *trongana* Rehn	×				
81		,, *varia* Walker				×	
94		*Rhicnoda desidiosa* Rehn	×				
93		,, *natatrix* Shelford				×	
93		,, *rugosa* Brunner	×	×	×	×	Pegu ; Tenasserim ; Halmahera.
94		,, *spinulosa* Brunner			×		
	432	*Calolampra limbata* n. sp	×				
	433	,, *nitida* n. sp.				×	
96	433	,, *pedisequa* Rehn	×				
		Sub-family 5. BLATTINAE					
98		*Platyzosteria soror* Brunner	×			×	Formosa ; Amboina etc.
99	433	*Cutilia nitida* Brunner	×				Formosa ; Philippines ; Amboina ; Ternate ; Ceram ; N Guinea ; Solomon I., N. S. Wales.
	434	*Methana dacrydii* n. sp.	×				
101		,, *hosei* Shelford				×	
100		,, *magna* Shelford				×	
100	434	,, *pallipalpis* Serville	×	×	×	×	Ceram ; Talaut ; Australia.
	435	,, *saundersi* n. sp.	×				
101	436	,, *semimarginalis* Hanitsch				×	
102	437	*Dorylæa flavicincta* De Haan	×	×	×	×	Madagascar ; Formosa.
104		*Platta concinna* De Haan	×		×		Honkong ; Japan ; Australia.
103		,, *orientalis* L.	×	×	×	×	Cosmopolitan.

I.	II.		Malay Peninsula.	Sumatra.	Java.	Borneo.	Other localities.
	441	*Scabina horrida* Hanitsch.				×	
106	436	*Stylopyga picea* Brunner	×		×	×	Nicobars; Lower Siam.
107		,, *proposita* Shelford			×		
105		,, *rhombifolia* Stoll	×		×	×	Cosmopolitan.
106		,, *semoni* Krauss			×		
108		*Periplaneta americana* L.	×	×	×	×	Cosmopolitan.
108		,, *australasiæ* Fab.	×	×	×	×	Cosmopolitan.
	437	,, *cavernicola* Chopard	×				
109		,, *crassa* Karny				×	
109	438	,, *lata* Herbst				×	
110		,, *malaica* Karny				×	
	440	,, *montana* n. sp.	×				
110		,, *regina* Saussure	×				
111		,, *robinsoni* Hanitsch		×			
109		,, *spinosostylata* Krauss			×		
111		,, *truncata* Krauss		×			New Britain; Brazil; Cosmopolitan; Tenerife,
112		*Homalosilpha decorata* Serville				×	
112		,, *ustulata* Burm.	×	?	×	?	
113		*Eroblatta borneensis* Shelford				×	
114		*Thyrsocera speciosum* Walker	?	?	?	?	"Eastern Archipelago."
114		,, *spectabilis* Burm.	×				Ceylon; Nepal.
116		*Archiblatta hœvenii* Vollenhoven	×	×	?	?	
118		*Catara minor* Krauss			×		
117	442	,, *rugosicollis* Brunner	×	×	×	×	
	444	*Protagonista pertristis* n. sp.	×				
		Sub-family 6. PANCHLORINAE.					
120		*Rhyparobia maderæ* Fab.	?	?	×	?	Cosmopolitan.
122		*Leucophœa nigra* Brunner		×	×		Burma.
122	445	,, *striata* Kirby	×				
121		,, *surinamensis* L.	×	×	×	×	Cosmopolitan
123		*Nauphœta cinerea* Olivier	×	×	?	?	Cosmopolitan.
		Sub-family 7. BLABERINAE. None.					
		Sub-family 8. CORYDINAE.					
125		*Corydia cœrulea* Shelford				×	
125	448	,, *forceps* Hanitsch	×				
126		,, *maxwelli* Hanitsch	×			×	
124		,, *petiveriana* L.	?	?	?	?	Ceylon; India; "East Indies."
127		*Homopteroidea nigra* Shelford				×	
128	449	*Holocompsa debilis* Walker	×		×	×	Ceylon.
128		*Polyphaga sumatrensis* Shelf.		×			
129		*Dyscologamia capucina* Brunner				×	Tenasserim.
130		,, *cesticulata* Sauss.	×			×	

I.	II.		Malay Peninsula.	Sumatra.	Java.	Borneo.	Other localities.
	447	*Dyscologamia chopardi* n. n.	×			×	
131		,, *pilosa* Walker			×		
115	446	*Miroblatta petrophila* Shelf.				×	
		Sub-family 9. OXYHALOINAE.					
133	449	*Diploptera dytiscoides* Serville	×			×	Ceylon; Burma; Philippines; Australia., etc.
134	449	*Chorisoneura lativitrea* Walker	×			×	Cambodia.
136		*Areolaria consocia* Walker	×				
136	450	,, *fieberi* Brunner	×		×		
135		,, *signata* Shelford				×	
135		,, *sumatrana* Shelford		×			
	451	*Prosoplecta dexter-alleni* n. sp	×				
		Sub-family 10. PERISPHAERINAE.					
140		*Paranauphœta atra* Shelford		×		×	
138		,, *basalis* Serville	×	×	×		
140		,, *bilunata* De Haan			×		
139		,, *brunneri* Shelford.				×	
138		,, *circumdata* De Haan		×		×	
140		,, *javanica* Saussure			×		
139		,, *lyrata* Burm.	×	×	×	×	India; Philippines; Celebes.
141		*Glyptopeltis biguttata* Saussure			×		
141		,, *couloniana* Saussure			?		
142	451	*Perisphæria armadillo* Serville	×		×		Amboina; Aru; N. Guinea.
	452	,, *aterrima* Herbst			×		
142		,, *glomeriformis* Lucas	×				Cochin China; Philippines.
143		,, *lucasiana* S. and Z.	×		×		
143	452	*Pseudoglomeris flavicornis* Burm.			×	×	S. India; Assam; Tenasserim; Cambodia.
144	453	,, *flexicollis* Walker	×				
	453	,, *planiuscula* Brunner	×				Burma; Tonkin.
	454	*Dolichosphæria arcuata* n. sp.	×				
	455	,, *deplanata* n. sp.	×				
		Sub-family 11. PANESTHINAE.					
145	455	*Salganea morio* Burm.	×	×	×	×	Ceylon; Formosa; Amboina.
146	456	,, *rugulata* Saussure	×	×	×		
149		*Panesthia angustipennis* Illiger		×		×	Philippines; Amboina.

I.	II.		Malay Peninsula.	Sumatra.	Java.	Borneo.	Other localities.
150		*Panesthia biglumis* Saussure			?		India; Sikkim.
156		,, *bramina* Saussure	×				India.
152		,, *ferruginipes* Brunner			×		
153	456	,, *hilaris* Kirby	×			×	
147		,, *javanica* Serville	×	×	×	×	Burma; Cambodia; Philippines.
149		,, *mandarinea* Saussure	×			×	China.
	456	,, *nicobarensis* Saussure					Nicobars.
154		,, *ornata* Saussure			×		China ?
151		,, *polita* Krauss			×	×	
148		,, *ruficeps* Kirby					Christmas I.
	457	,, *saussurii* Stål	×	×	×	×	Formosa; Philippines; Ceram; N. Guinea, N.S. Wales.
	458	,, *shelfordi* n. sp.				×	
155		,, *sinuata* Saussure	×				
154		,, *transversa* Burm			×		Burma.
152		,, *wallacei* Wood-Mason	×				
157	459	*Miopanesthia discoidalis* Saussure	×		×		India; Celebes.
157		,, *stenotarsis* Saussure			×	×	
158		*Mylacrina wrayi* Kirby	×				
	460	*Dicellonotus monstruosus* W.-M.	×				India

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(Supplementary to the list published in Journal No. 69, pp. 169–172).

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ILLUSTRATIONS IN THE TEXT.

Fig. 1. *Anaplecta vittata* n.sp. ♀ ... ... Page 397
Left wing. × 10.

Fig. 2. *Phyllodromia abrupta* n.sp. ♀ ... ... „ 399
Right tegmen. × 7.

Fig. 3. *Phyllodromia abrupta* n.sp. ♀ ... ... „ 399
Right wing. × 7.

Fig. 4. *Phyllodromia amplectens* Walker. ♂. ... „ 401
Left tegmen. × 7.

Fig. 5. *Phyllodromia amplectens* Walker. ♂ ... „ 401
Right wing. × 7.

Fig. 6. *Phyllodromia diagrammatica* Hanitsch. ♂... „ 404
× 7.

Fig. 7. *Phyllodromia diagrammatica* Hanitsch. ♂ „ 405
Left wing. × 7.

Fig. 8. *Phyllodromia diagrammatica* Hanitsch. ♂... „ 405
Right wing. × 7.

Fig. 9. *Phyllodromia laterifera* Walker. ♂ ... ... „ 406
Left tegmen. × 5.

Fig. 10. *Phyllodromia luteomarginata* n.sp. ♂ ... „ 408
Right tegmen. × 4.

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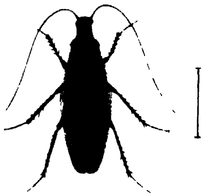
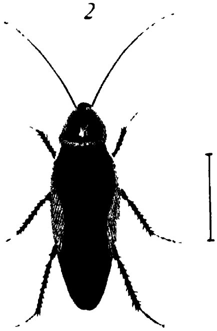


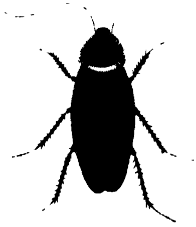
Theganopteryx apicigera, Wlk.

2



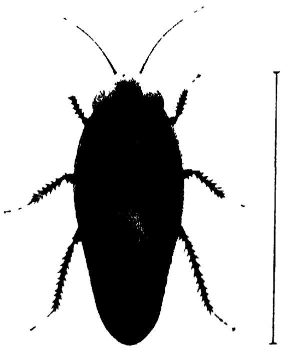
Hemithyrsocera lateralis, Wlk.

3



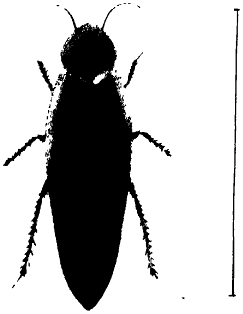
Hemithyrsocera palliata, Fab.

4



Pseudophoraspis nebulosa, Burm.

5



Rhabdoblatta pfeiferæ, Brunner

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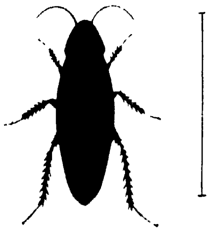

Epilampra puncticollis, Wlk.

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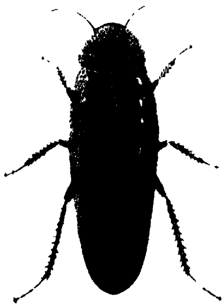

Epilampra lurida, Burm.

Valentine Knight del.

John Swain & Son, Ltd

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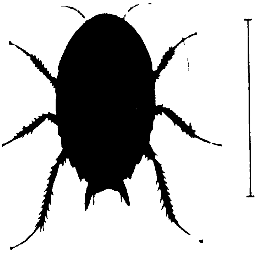

Cutilia nitida,
Brunner

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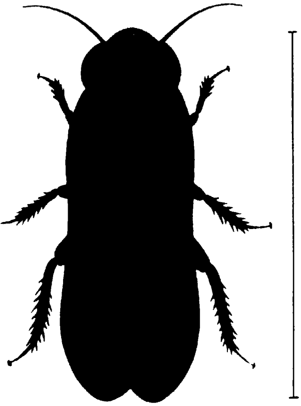
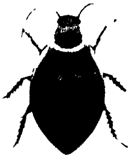


Salganea morio,
Burm.



Prosoplecta
dexter-alleni, n. sp.

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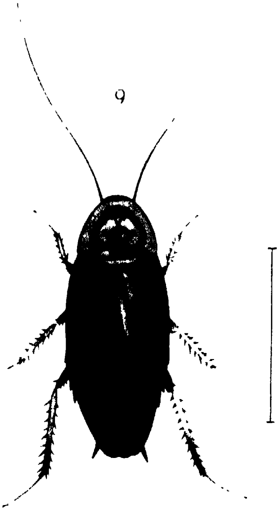

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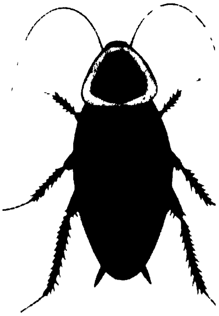

Methana saundersi,
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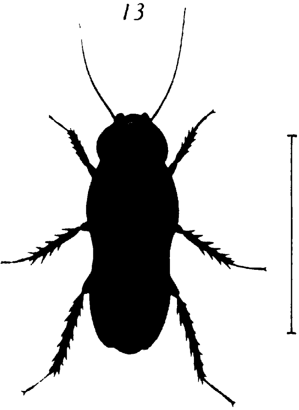

Panesthia hilaris,
Kirby.

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Vol. II. Part I.

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Malayan Branch

of the

Royal Asiatic Society

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1924

THE

Malayan Branch

OF THE

Royal Asiatic Society.

H. E. Sir Laurence Guillemard, K.C.B., K.C.M.G., Governor of the Straits Settlements and High Commissioner for the Malay States.

Council for 1924.

The Hon. Mr. E. S. Hose, C.M.G. -	*President.*
The Hon. Dr. R. O. Winstedt and Mr. I. H. Burkill -	*Vice-Presidents for the S.S.*
Mr. J. B. Scrivenor and Mr. A. J. Sturrock -	*Vice-Presidents for the F. M. S.*
The Hon. Mr. J. L. Humphreys and The Hon. Mr. A. F. Worthington -	*Vice-Presidents for the Unfederated States.*
Mr. C. Boden Kloss -	*Hon. Secretary.*
Mr. R. E. Holttum -	*Hon. Treasurer.*
Dr. F. W. Foxworthy and Messrs. A. F. Richards, W. G. Stirling, J. Johnston, J. D. Hall -	*Council.*

Proceedings

of the

Annual General Meeting.

The Annual General Meeting was held in the Society's room in the Raffles Museum at 5 p.m. Thursday 21st February 1924.

The Hon. Dr. R. O. Winstedt in the Chair.

1. The Minutes of the Annual General Meeting held 10th February 1923 were read and confirmed.
2. The Annual Report and Statement of Accounts were adopted.
3. The following amendments to the rules were passed:—

Rule 2 For "The formation of a library of books and maps" read "The acquisition of books, maps and manuscripts."

8. Delete the words "An Honorary Librarian."
For "Four Councillors" read "Five Councillors."

11. For "once a month" read "once a quarter."

18. For "in each year" read "of each volume."

4. A letter was read from the Hon. Mr. W. George Maxwell, C.M.G., in which he stated that he did not wish to stand again for the Presidentship. The Meeting heard this with regret, being conscious of the great assistance Mr. Maxwell had been to the Society as President in the past.

5. The election of Officers and Members of Council for the current year resulted as follows:—

President	The Hon. Mr. E. S. Hose, C.M.G.
Vice-Presidents for the S.S. ..	The Hon. Dr. R. O. Winstedt and Mr. I. H. Burkill.
Vice-Presidents for the F.M.S. ..	Mr. J. B. Scrivenor and Mr. A. J. Sturrock.
Vice-Presidents for the U.M.S. ..	The Hon. Mr. J. L. Humphreys and The Hon. Mr. A. F. Worthington.
Hon. Secretary	Mr. C. Boden Kloss.
Hon. Treasurer	Mr. R. E. Holttum.
Council	Dr. F. W. Foxworthy and Messrs. A. F. Richards, W. G. Stirling, J. Johnston, J. D. Hall.

6. The Chairman stated that since the General Meeting had been called there was good reason to hope that the Governments of the Straits Settlements and the Federated Malay States were willing to come to the assistance of the Society with annual grants of money. The Meeting therefore agreed that action regarding the financial position of the Society should be deferred.
7. A vote of thanks to the Chair, proposed by Mr. J. Johnston, concluded the meeting.

Annual Dinner.

By permission of the Singapore Club the usual annual dinner was held at that Club on Thursday 21st February at 8 p.m.

The Hon. Dr. R. O. Winstedt, a Vice-President for the Straits Settlements, presided. The Patron of the Society, H. E. the Governor and High Commissioner, Sir L. N. Guillemard, K.C.B., K.C.M.G., was present as the guest of the evening. Covers were laid for twenty-eight.

After the usual loyal toast and an address from the Chairman who proposed the health of the Patron Sir Laurence Guillemard made one of his witty and amusing speeches. The speaker, by his ornithological remarks, showed a knowledge of science not often found in Patrons. He concluded by asking the meeting to drink to the Society coupled with the name of the recently-elected Honorary Secretary, whose reply, together with the health of the Chairman, brought the more formal part of the occasion to a close.

◆

List of Members For 1924.

(as on 1st January 1924.)

* Life Members. † Contributors to the Society's Journal.

Honorary Members.

Year of Election.	
1903.1923.	†Abbott, Dr. W. L., 400 South 15th Street, Philadelphia, U.S.A.
1890.1918.	†Blagden, C. O., Shirley, 57 Earl's Court Square, London, S. W. 5.
1921.	Brandstetter, Prof. Dr. R., Luzern, Switzerland.
1894.1906.	Collyer, W. R., i.s.o., Hackford Hall, Reepham, Norfolk, England. (Council, 1904: Vice-President 1897-1900, 1902, 1904-1905).
1903.1917.	†Galloway, Sir D. J., British Dispensary, Singapore. (Vice-President, 1906-1907: President, 1908-1913).
1895.1920.	†Hanitsch, Dr. R., 99, Woodstock Road, Oxford, England. (Council, 1897-1919: Hon. Treasurer, 1898-1906, 1910-1911, 1914-1919: Hon. Secretary, 1912-1913).
1922.	Johore, H. H. The Sultan of, g.c.m.g., k.b.e., Johore Bahru, Johore.
1921.	Perak, H. H. The Sultan of, k.c.m.g., The Astana Negara, Bukit Chandan, Kuala Kangsar, Perak.
1878.	†Perham, Ven. Archdeacon J., Chard, Somerset, England.
1890.1912.	†Ridley, H. N., c.m.g., m.a., f.r.s., 7, Cumberland Road, Kew Gardens, Surrey, England. (Council, 1890-1894, 1896-1911: Hon. Secretary, 1890-1893, 1896-1911).
1916.	Sarawak, H. H. The Rajah of, Kuching, Sarawak.
1885.	Satow, Sir Ernest M., Beaumont, Ottery St. Mary, Devon, England.
1894.1921.	†Shellabear, Rev. W. G., d.d., c/o Board of Foreign Mission, 150, Fifth Avenue, New York City, U.S.A. (Council, 1896-1901, 1904: Vice-President, 1913: President 1914-1918).
1921.	Snouck-Hurgronje, Prof. Dr., Leiden, Holland.
1921.	†Van Ronkel, Dr., P. H., Professor of Malay, Zoeterwoudsche Singel 44, Leiden, Holland.

Corresponding Members.

1920.	†ANNANDALE, N., D.SC., F.A.S.B., Indian Museum, Calcutta.
1920.	†LAIDLAW, F. F., M.A., F.Z.S., Hyefield, Uffculme, Devon.
1920.	†MERRILL, E. D., PH.D., DEAN, College of Agriculture, University of California, Berkeley, California, U.S.A.
1920.	†MOQUETTE, J. P., Kebonsirih 36, Weltevreden, Java.

Ordinary Members.

1918.	ABDUL-MAJID BIN HAJI ZAINUDDIN, Haji, British Consulate, Jeddah.
1922.	ABDULLAH, Dato Sadia Raja, Undang of Rembau, Negri Sembilan.
1916.	†ABRAHAM, H. C., c/o Topographical Survey Dept. Taiping, Perak.
1920.	†ABIDIN, ZAINAL, BIN AHMAD, Education Dept., Kuala Lumpur.
1909.	ADAM, FRANK, The Straits Trading Co. Ltd., Singapore.
1907.	*ADAMS, SIR ARTHUR, K. B. E., Penang.
1921.	ADAMS, C. D., Baram, Sarawak.
1919.	ADAMS, H. A., Kuching, Sarawak.
1917.	ADAMS, J. W., M.R.C.S., L.R.C.P., B.A., M.B., B.C., Medical Health Officer, Penang.
1920.	ADAMS, P. M., Kuching, Sarawak.
1917.	ADAMS, R. H., c/o Standard Bank of S. Africa Ltd., 10, Clement Lane, London, E. C. 4.
1909.	†ADAMS, T. S., Taiping, Perak.
1919.	*ADELBORG, F., Siginting Rubber Estate, Port Dickson.
1922.	ALEXANDER, C. S., Kuala Lumpur.
1913.	ALLEN, REV. G. DEXTER, M.A., Windermere, St. Thomas Walk, Singapore.
1914.	ALLEN, H. C. W., Boustead & Co. Ltd., Singapore.
1921.	ALLEN, L. A., Land Office, Ipoh, Perak.
1917.	ALLEN, P. T., Supt., Criminal Vagrant Ward, Larut, Perak.
1921.	ALLEN, DR. R., B.SC., Sarawak Oilfields, Miri, Sarawak.
1921.	ALLEN, W. H. R., Straits Trading Co. Ltd., Penang.
1914.	AMERY, REV. A. J., Outram Road School, Singapore (Council 1921).
1923.	ANDAH, INCHE AHMAD BIN, Johore Civil Service, Johore.
1921.	†ANDREINI, CAPT. E. V., Kapit, Sarawak.
1908.	ARTHUR, J. S. W., Land Offic, Penang.
1923.	ASTON, A. V., Malayan Civil Service, Malacca.

1921. Austen, K. W. H., c/o Police Office, Penang.
1908. *Ayre, C. F. C., High School, Malacca.
1921. *Aziz, Unku Abdul, Johore Bahru, Johore.
1915. Baddeley, F. M., b.a., Under Secretary, Singapore.
1921. Badheka, Mohaul O., 21, Malacca Street, Singapore.
1919. *Bailey, A. E., Mountmillan, Knowles Hill, Newton Abbot, England.
1923. Bailey, Arnold, Kuala Lumpur.
1915. Bain, Norman K., b.a., Ipoh, Perak.
1922. Bakar, Inche Abu, Bin Hamad, Johore Bahru, Johore.
1912. †Baker, A. C., m.c., b.a., Malacca.
1921. *Ball, H., Inspector of Schools, Malacca.
1916. Banks, H. H., Sanitary Board, Seremban.
1899. *Banks, J. E., c/o The American Bridge Co., Cambridge, Pa., U. S. A.
1920. Barbour, Dr. T., Museum of Comparative Zoology, Harvard University, Cambridge, Mass, U. S. A.
1920. Bardham, Rai Sahib, S. N., Govt. Pathological Lab. Malacca.
1921. Barnes, J. R., Kuching, Sarawak.
1923. Barron, J. M., Malayan Civil Service, Ipoh, Perak.
1910. Bartley, W., m.b.e., b.a., c/o Secretariat, Singapore.
1923. Bathurst, H. C., m.c.s., Batu Gajah.
1921. Baughan, G. E. S., S. S. Police, Penang.
1914. Bazell, C., Malay College, Kuala Kangsar, Perak. (Hon. Librarian, 1916-20): Hon. Treasurer 1921).
1923. *Beamish, C. A., Education Department, Malacca.
1909. Bean, A. W., c/o Robinson & Co., Singapore.
1921. Beard, H., The Asiatic Petroleum Co., Miri, Sarawak.
1923. Becker, F. E., Wessyngton Estate, Rengam, Johore.
1921. Belgrave, W. N. C., Agriculture Department, Kuala Lumpur.
1913. Bell, V. G., Kuala Lumpur.
1921. Bell, W. C. B., Bell & Co., Singapore.
1921. Benjamin, Major E. V., m.c., Asiatic Petroleum Co., Miri, Sarawak.
1910. *Berkeley, H., Grik, Upper Perak.
1912. Bicknell, J. W., U. S. Rubber Plantations Inc., Penang.
1884. Bicknell, W. A., 3 Alexander Terrace, Exmouth, Devon.
1922. Biggs, L. A. C., Municipal Office, Penang.
1908. *Bishop, Major C. F., R. A.
1922. Bishop, D. A., Principal, Raffles Institution, Singapore.
1921. Black, Major K., Tan Tock Seng's Hospital, Singapore.

1923. Black, J. A., Chinese Protectorate, Singapore.
1923. Black, J. G., Malacca.
1923. *Blacker, G. O., 123, Princess Street, Manchester.
1884. †Bland, R. N., C.M.G., c/o Messrs. H. S. King & Co., 9 Pall Mall, London, S. W., England. (Council 1898-1900: Vice-President, 1907-1909).
1921. Blasdell, Rev. R., Anglo-Chinese School, Ipoh.
1923. Boothby, J. V., Kudat, B. N. B.
1910. Boult, F. F., Limbang, Sarawak.
1919. *Bourne, F. G., Coroner, Singapore.
1921. Boyd, R., Labour Office, Taiping, Perak.
1918. *Boyd, W. R., c/o Crown Agents, London.
1915. Boyd-Walker, J. W., Penang.
1913. †Braddell, R. St. J., Braddell Bros., Singapore.
1918. Bradney, G. P., Auditor-General, F. M. S. Kuala Lumpur.
1923. Bresland, C. W., Land Office, Kuala Lumpur.
1897. Brockman, Sir Edward L., K.C.M.G., 88, Cannon St., London E. C.
1909. †Brooks, C. J., Lebong Tandai, Benkoelen, Sumatra.
1909. Brown, Mr. Justice A. V., Johore Bahru, Johore.
1915. Brown, C. C., c/o Secretariat, Singapore.
1910. Brown, D. A. M., c/o Messrs. Brown Philips & Stewart, Penang.
1921. Browne, T. W., Kuala Pilah Estate, Negri Sembilan.
1923. Brunton, R. O., Tangga Batu Estate, Malacca.
1913. *Bryan, J. M., c/o Messrs. The Borneo Co. Ltd., Fenchurch St., London, E. C.
1887. Bryant, A. T., Messrs. Bryant & Ryde, Bush Lane Chamber, Bush Lane, London E. C. 4. (Council 1907-1910: Vice-President 1912, 1914-1916).
1921. Burkill, I. H., M.A., Director, Botanic Gardens, Singapore. (Council, 1913-17, 1921- : Hon. Secretary, 1914-1917).
1923. Burr, P. B. F., Chief Sanitary Inspector, Ipoh, Perak.
1921. Butterfield, H. M., Alor Star, Kedah.
1913. *†Caldecott, A., c/o Crown Agents, London.
1921. Campbell, F. M., Wardieburn Estate, Kuala Lumpur.
1916. †Campbell, Professor J. Argyll, M.D., D.S., c/o Messrs. W. and F. Haldane, 4 North Charlotte St., Edinburgh, Scotland. (Council, 1917, 1919).
1923. Campbell, Hon. J. W., Malacca.
1918. Carpmael, H., Municipality, Singapore.
1921. *Cavendish, A., Taiping, Perak.
1906. Chapman, W. T., Chinese Protectorate, Kuala Lumpur.
1921. †Chasen, F. N., M.B.O.U., Raffles Museum, Singapore.

1921. Cheers, E., S. S. Police, Trengganu.
1913. *Choo Kia Peng, The Hon. Mr., Kuala Lumpur.
1913. Chulan, Raja, di Ilir, Kuala Kangsar, Perak.
1923. Churchill, W. F. N., Malayan Civil Service, Kuala Lumpur.
1921. Clark, H. T., Inspector of Schools, Singapore.
1921. Clark, Dr. W. E. Le Gros., P. M. O., Kuching, Sarawak.
1922. Clarkson, H. T., Sahang, Pontianak, D. W. Borneo.
1921. Clayton, G. E., Cadets' Bungalow, Penang.
1911. *Clayton, T. W., Taiping, Perak.
1917. Clifford, G. F. W., Manager, Lawas (Sarawak) Rubber Estates Ltd., Lawas via Labuan, S. S.
1923. Cobbe, F., King Edward VII School, Taiping, Perak.
1922. Cochrane, C. W. H., Federal Secretariat, Kuala Lumpur.
1922. Cocker, T. B., Deputy Registrar, Singapore.
1922. Coe, Capt. T. P., m.c., Malayan Civil Service, Kuala Lumpur.
1920. *†Collenette, C. L., Gottire Lodge, Woodford Green, Essex.
1897. *Conlay, W. L., Kuala Lumpur.
1921. Connell, Mrs. J. J., c/o Connell Bros., Singapore.
1899. Cook, Rev. J. A. B., Gilstead, Singapore.
1910. Cook, W. Wallace, c/o Straits Trading Co. Ltd., Singapore.
1923. Cookson, W. S., Seldings Estate, Selama, Perak.
1921. Cooney, A. C., Govt. English School, Alor Star, Kedah.
1920. Cotterill, Walter S., Miri, Sarawak.
1921. Coulson, N., District Office, Dindings.
1921. Cowap, J. C., Govt. Analyst's Office, Penang.
1923. *Cowgill, J. V., Trengganu.
1921. Crandall, Miss, Anglo-Chinese Girls' School, Penang.
1921. Cranna, Gordon, Y. M. C. A., Singapore.
1917. Crichton, R., Malayan Civil Service, K. Kangsar.
1921. Crocker, H. B., Kuching, Sarawak.
1922. Cross, A. V., Seremban.
1917. Cross, Rev. W., Cavanagh Road, Singapore.
1910. Croucher, F. B., m.b., c.m., General Hospital, Singapore.
1917. †Cubitt, G. E. S., Conservator of Forests, S. S. and F. M. S., Kuala Lumpur.
1921. Cullen, W. G., c/o Barker & Co., Singapore.
1923. Curtis, R. J. F., District Officer, Alor Gajah.
1923. Daines, L. R., Asst. Justman, Tahak Mij., 8 Nordwij, Batavia.
1922. Dalton, H. G., Mersing, Johore.
1923. Dalton, N. D., Gadek Estate, Tampin, F. M. S.

1910. *Daly, M. D., Alor Star, Kedah.
1923. Daud, Inche Abdul Kader Bin, State Secretariat, Johore.
1918. *David, P. A. F., B.A., Singapore.
1921. Davidson, A. W., c/o Huttenbach Lazarus & Sons, Singapore.
1923. Day, E. V. G., British Adviser's Office, Kedah.
1922. Denny, A., Sungei Pelek Estate, Sepang, Selangor.
1921. Dennys, S. E., Alor Star, Kedah.
1921. Deshmukh, G. B., Botanic Gardens, Singapore.
1903. *Deshon, H. F., F.R.G.S., Southfield, Combe Down, Bath, Eng.
1921. Dickinson, A. H., S. S. Police, Singapore.
1897. Dickson, E. A., Kuala Kubu, Selangor.
1921. *Dickson, P. L., Western House, The Nash, Nottingham.
1920. Dodds, H. B., M.D., General Hospital, Singapore.
1923. *Doscas, A. E. Coleman, Dept. of Agriculture, Johore.
1921. †Douglas, F. W., D. O., Klang.
1905. †Douglas, R. S., F.R.G.S., Miri, Sarawak.
1922. Drury, Capt. F., O.B.E., Bukit Zahara School, Johore Bahru.
1921. Dryburgh, A. M., Jelebu, Negri Sembilan.
1910. Dunman, W., Grove Estate, Grove Road, Singapore.
1915. *†Dussek, O. T., Sultan Idris Training College, Tanjong Malim.
1921. Eaton, B. J., O.B.E., Agric. Dept., Kuala Lumpur.
1922. Ebden, W. S., Pekan, Pahang.
1922. Eckhardt, H. C., Telok Anson, Perak.
1922. Edgar, A. T., Suffolk Estate, Sitiawan, F. M. S.
1921. Edwards, S. J., A.R., L.B.A., c/o Ralph Booty & Co., Singapore.
1885. Egerton, Sir Walter, K.C.M.G., Fir Toll, Mayfield, England.
1921. Elder, Dr. E. A., 4, Battery Road, Singapore.
1918. Elliott, F. M., O.B.E., Treskelly, Maruhull, Dorset, England.
1922. Elles, B. W., Taiping, Perak.
1913. Ermen, C., Kuching, Sarawak.
1923. *Eu Tong Sen, Mr., O.B.E., Sophia Road, Singapore.
1918. †Evans, I. H. N., M.A., The Museum, Kuala Lumpur.
1919. Fahs, C. H., Secretary, Missionary Research Library, 25 Madison Avenue, New York City, U. S. A.
1910. Falshaw, P. S., M.R.C.V.S., Govt. Veterinary Surgeon, Singapore.
1909. Farrer, R. J., Municipal Offices, Singapore.
1922. Fearon, L. L. F., c/o Fearon & Co., Kuala Lumpur.
1911. *Ferguson-Davie, Rt. Rev. Dr. C. J., Bishop of Singapore. (Council 1912-1913).
1909. Ferrier, J. C., Borneo Co. Ltd., Soerabaya.

1917. Finlayson, G. A., m.a., m.b., General Hospital, Singapore.
1919. *Finnie, W., Mintlaw Station, Aberdeen.
1910. Firmstone, H. W., Sentosa, Ripple, Dover. (Council 1918-1919: Vice-President, 1920).
1897. *Flower, Major S. S., o.b.e., Zoological Gardens, Ghizeh, Egypt.
1921. Forrer, H. A., Penang.
1921. Foulger, R. G., c/o Chief Police Officer, Singapore.
1918. †Foxworthy, Dr. F. W., Kuala Lumpur (Council 1923-).
1921. Fraser, Hon. Mr. F. W., c.b.e., Government Secretary, Jesselton, British North Borneo.
1922. *Fraser, H. J., Messrs. Fraser & Co., Kuala Lumpur.
1908. Freeman, D., c/o Messrs. Freeman & Madge, Kuala Lumpur.
1910. *Frost, Meadows, B. A., Commissioner of Lands and Mines, Johore.
1922. Fuller, J. C., Kuala Kubu, Selangor.
1923. Fulton, George R., Geologist's Office, Johore Bahru.
1912. Gallagher, W. J., m.a., U. S Plantations Inc. Medan, Sumatra.
1923. Gan Khek Keng, 26 Oxley Road, Singapore.
1923. Gardner, H. G., Hongkong and Shanghai Bank, Penang.
1917. †Garnier, Rev. Keppel, Penang.
1923. Gater, G. A. R., Department of Agriculture, Kuala Lumpur.
1920. Geale, Dr. W. J., Ulu Kelantan.
1921. Gibson, L. B., Cadet's Bungalow, Macalister Road, Penang.
1903. Gibson, W. S., b.a., Legal Adviser, Kuala Lumpur.
1923. Gilbertson, L. J., British American Tob. Co., Singapore.
1922. Gilman, E. W. P., Kuala Lumpur.
1923. Gilmour, A., Labour Office, Penang.
1902. *†Gimlette, Dr. J. D., 18 Pulteney Mansions, Bath.
1922. *Glass, Dr. G. S., Municipal Health Officer, Penang.
1916. Glennie, Dr. J. A. R., Municipal Offices, Singapore.
1918. Gloyne, G. B., c/o Burt Myrtle & Co., Sourabaya.
1918. Goldie, R. M., United Engineers Ltd., Penang.
1916. Goodman, A. M., b.a., Chinese Secretariat, Kuala Lumpur.
1922. Goodwin, R. N., Pinang Gazette's Office, Penang.
1922. Gordon, T. I. M., General Post Office, Singapore.
1920. Gordon-Hall, Capt. W. A., Kuala Lipis, Pahang.
1909. Goulding, R. R., Survey Department, Kuala Lumpur.
1919. Gow, G. Aubrey, Lebong Tandai, Benkoelen, Sumatra.

1918.	Graham, Major A., m.d., The Lodge, West Malling, Kent.
1921.	Graham, W., Sarawak Oilfields, Miri, Sarawak.
1923.	Green, Dr. P. Witners, Johore Bahru.
1923.	Greig, G. E., Actg. Senior Warden of Mines, Kuala Lumpur.
1923.	Grieve, C. J. K., Post Box No. 20, Kuala Lumpur.
1918.	Griffin, N. A. M., C. P. O., Penang.
1921.	Griffiths, C. S., Kuching, Sarawak.
1911.	Griffiths, J., Survey Office, Singapore.
1911.	Grist, D. H., Department of Agriculture, Kuala Lumpur.
1922.	Gubbins, W. H. W., Seremban.
1916.	Gulta, Shiva Prasad, Naudansahu Street, Benares City, U. P.
1923.	*Hacker, Dr. H. P., Medical Research Institute, Kuala Lumpur.
1923.	Haines, Major O. B., S. O. S. Estate, Selama, Perak.
1921.	Haines, W. A. C., A. C. of Police, Alor Star, Kedah.
1923.	Hake, H. Egmont, Harrisons, Barker & Co. Ltd., Kuala Lumpur.
1923.	Halford, Sidney, Asst. Chief Surveyor, F. M. S. R., Kuala Lumpur.
1922.	Hall, A. C., Singapore.
1907.	Hall, G. A., c/o Crown Agents, London (Vice-President 1921).
1914.	Hall, J. D., b.a., Government House, Singapore.
1918.	Hallaway, J. P., Gas Engineer, Singapore.
1911.	*Hallifax, F. J., Oakwood, Brampton, Cumberland.
1921.	Ham, G. L., Colonial Secretariat, Singapore. (Council 1922).
1915.	†Hamilton, A. W., (Vice-President 1922).
1918.	Hampshire, A. K. E., Kuala Lumpur.
1922.	Hampshire, D. H., c/o Boustead & Co., Kuala Lumpur.
1923.	Hancock, A. T., 22-2 Tanglin Road, Singapore.
1921.	Handover, W. P., Sungei Nipah Estate, Port Dickson.
1922.	Hanitsch, P. H. V., Johore Bahru, Johore.
1921.	Hardie, J. A. H., Kuching, Sarawak.
1909.	Harrington, A. G., Municipal Offices, Singapore.
1922.	Harrison, C. W., Taiping, Perak.
1922.	Harrower, G., m.b., Medical School, Singapore.
1921.	Hart, Dr. H. H., b.a., 3363, Washington Street, San Francisco, California, U. S. A.
1923.	Hartnett, F., Guthrie & Co. Ltd., Singapore.
1921.	Harvey, R. N., S. S. Police, Singapore.
1921.	Hashim, Capt. N. M., Parit Buntar, Perak.
1921.	Hawkins, G., D. O., Balik Pulau, Penang.
1919.	Hay, M. C., b.a., Asst. Adviser, Batu Pahat, Johore.

1921.	Hayes, L. J., c/o Messrs. Fraser & Co., Singapore.
1904.	Haynes, A. S., Kuala Lumpur. (Council 1920).
1922.	Hazlitt, P. K., Kulim, Kedah.
1922.	Hellings, M. C. S., Kuala Lumpur.
1923.	Hemmant, G., Colonial Secretariat, Singapore.
1921.	Henderson, M. R., Perak Museum, Taiping.
1923.	Henggeler, A. A., Kuala Lumpur.
1909.	Hennings, W. G., c/o Mansfield & Co. Ltd., Singapore.
1917.	Hereford, G. A., m.a., Johore Bahru.
1923.	*Hicks, E. C., Education Department, Alor Star, Kedah.
1878.	Hill, E. C., 26 Highfield Hill, Upper Norwood, London S. E.
1922.	Hill, W. C., Singapore Oil Mills, Havelock Road, Singapore.
1922.	Hinde, C. T., Mersing, Johore.
1923.	Hodgson, D. H., Asst. Conservator of Forests, Kuala Lumpur.
1921.	Holgate, M. R., Sultan Idris Training College, Tanjong Malim.
1923.	Holland, A. D., Kopoewas Rubber Co. Ltd., Soengei Dekau, Pontianak.
1921.	Holleman, W., Sawah Loento, Sumatra.
1922.	Holttum, R. E., Asst. Director of Gardens, Singapore. (Hon. Treasurer, 1923-).
1921.	†*Hoops, Hon. Dr. A. L., P. C. M. O., Singapore.
1917.	*Hose, Dr. Charles, f.r.g.s., Redleaf, Riddledown Road, Purley, Surrey.
1897.	Hose, Hon. Mr. E. S., c.m.g., The Residency, Seremban.
1923.	Howl, Capt. F. W., F. M. S. R. Department, Kuala Lumpur.
1922.	Howlett, Capt. J. H., m.c., Agric. Department, Kuala Lumpur.
1891.	†Hoynck, Van Papendrecht, P. C., Le Tanglin, Avenue Trespoey, Pau, Basses, Pyrenees, France.
1909.	Hubback, T. R., Kuala Lipis, Pahang.
1922.	Huggins, Capt. J., M. C., Kajang, F. M. S.
1909.	Hughes, J. W. W., Police Magistrate, Penang.
1907.	†Humphreys, The Hon. Mr. J. L., Trengganu (Vice-President 1922-).
1922.	Hunt, Capt. H. North, Asst. Adviser, Kota Tinggi, Johore.
1921.	Hunter, Dr. P. S., Municipal Offices, Singapore.
1922.	Irvine, Capt. R., M. C., Rembau.
1921.	Irving, The Hon. Mr. G. C., The Residency, Jesselton, B. N. B.
1921.	Ismail bin Bachok, Dato, d.p.m.j., Johore Bahru, Johore.
1921.	Ivens, F. B., Bannon & Bailey, Kuala Lumpur.

1921.	*IVERY, F. E., Kedah.
1923.	JAAFAR, DATO ABDULLAH BIN, Tarom, Johore Bahru.
1921.	JACQUES, DR. F. V., 49 Hospital Road, Kuala Lumpur.
1921.	JAFFAR, INCHE ONN BIN, Johore Bahru, Johore.
1922.	JAGO, E., Department of Agriculture, K. Lumpur.
1921.	JALALUDIN, AHMED, Malay College, Kuala Kangsar.
1918.	*JAMES, D., Goebilt, Sarawak.
1910.	JAMIESON, DR. T. HILL, 4 Bishop Street, Penang.
1907.	JANION, E. M., 5 Gracechurch Street, London E. C. 3.
1918.	JANSEN, P. T., Pzn., Lebong Tandai, Post Ketaun, Benkoelen, Sumatra.
1918.	JEAVONS, F. C., Sione Estate, Batu Caves, Selangor.
1921.	*JERMYN, L. A. S., Govt. English School, Northam Road, Penang.
1911.	JELF, A. S., Kuala Lumpur.
1910.	JOHNSON, B. G. H., Telok Anson, Perak.
1911.	JOHNSON, H. S. B., c/o The Borneo Co. Ltd., 28, Fenchurch Street, London. E. C.
1920.	JOHNSTON, J., Librarian, Raffles Library, Singapore.
1918.	*JONES, E. P., Fleet Paymaster, 20 Waterbell Street, Rye, Sussex, England.
1910.	JONES, H. W., Kuala Kubu, Selangor.
1913.	JONES, S. W., District Officer, Kuala Lipis, Pahang.
1919.	*JORDAN, A. B., Chinese Protectorate, Seremban.
1921.	JOY, M. M., Asiatic Petroleum Co., Miri, Sarawak.
1916.	KAMARALZAMAN, RAJA, BIN RAJA MANSUR, Tapah, Perak.
1921.	KASSIM, TUNKU, BIN SULTAN ABDUL HAMID HALIMSHAH, Supt. of Monopolies and Customs, Alor Star, Kedah.
1916.	KELLAGHER, G. B., Official Assignee's Office, Singapore.
1921.	*KELLIE, J., Padang Tungku, Pahang.
1909.	KEMP, HON. MR. W. LOWTHER, Harrisons, Barker & Co., Singapore.
1913.	KEMP, J. E., Trengganu.
1922.	*KER, W. P. W., Paterson, Simons & Co. Ltd., Singapore.
1920.	*KERR, DR. A. F. G., Govt. Botanist, Bangkok, Siam.
1921.	KINDER, C. S., S. S. Police, Singapore.
1920.	KING, E. M., Kong Lee (Perak) Plantations Ltd., Bagan Serai.
1916.	KINSEY, W. E., Forest House, Seremban.
1921.	KITCHING, T., District Surveyor, Kuala Kangsar.
1900.	†KLOSS, C. BODEN, Raffles Museum, Singapore, (Council, 1904-8, 1923: Vice-President, 1920-21, Honorary Secretary 1923-).

1915. Knight, Valentine, Fairgoxen Cottage, Glemsford, Suffolk, England. (Hon. Treasurer, 1920).

1922. Kraemer, Dr. H., Gondokoesoeman, 6 Jogjakarta, Java.

1920. Kortright, F. H., Bau, Sarawak.

1922. Lacomble, J. A., Controleur B. B. Talock, Indragiri, Sumatra.

1914. Lambourne, J., Supt., Government Plantations, Kuala Lumpur.

1920. Law, Capt. H. R. S., c/o Asiatic Petroleum Co. Ltd., Singapore.

1906. †Lawrence, A. E., Mukah, Sarawak.

1923. *Lease, F. E., Sapong Estate, Tenom, B. N. Borneo.

1921. Lee, J. Romanis-, St. John's Hall, Hongkong.

1921. *Lee, L. G., Labu Estate, British North Borneo.

1922. Leech, R. F. V., Raub, Pahang.

1922. *Leggate, J., Prai, Province Wellesley.

1913. Leicester, Dr. W. S., Kuantan, Pahang.

1917. Lemberger, V. V., United Engineers, Ltd., Singapore.

1894. *Lemon, A. H., C.M.G., c/o Crown Agents, London. (Vice-President, 1916-1918).

1920. Lendrick, J., Norregate 34, Aarhus, Denmark.

1923. Lermit, A. A., Survey Department, Malacca.

1890. Lewis, J. E. A., B.A., Harada Mura, Kobe, Japan.

1922. Leyne, E. G., Kajang, F. M. S.

1897. Lim Boon Keng, Dr., O.B.E., M.D., Amoy University, Amoy, China. (Council 1921).

1915. Lim Cheng Law, Millview, Penang.

1921. Lindon, N. L., S. S. Police, Singapore.

1918. Loh Kong Imm, Sepang-Tanah Merah Estate, Sepang, Selangor.

1914. Lornie, Hon. Mr. J., Land Office, Singapore.

1921. Lowe, Capt. C. P., Kuching, Sarawak.

1922. Lowinger, V. A., Surveyor-General, F. M. S. and S. S., Kuala Lumpur.

1918. Lucy, G. H. R., M.R.C.S., c/o Crown Agents, London.

1921. Lynch, J. R., F. M. S. Railways, Singapore.

1907. *Lyons, Rev. E. S., c/o Methodist Publishing House, Manila.

1918. Macalister, G. H., M.A., B.Ch., M.D., D.P.H., M.R.C.S., Medical School, Singapore. (Council 1922-23).

1920. Macbryan, G. T. M., Kapit, Sarawak.

1910. *†Macfadyen, Eric, c/o Sports Club, London.

1920. Mackie, Vivian, Kuala Lumpur.

1922. Mackness, L. R., Kuala Lumpur.

1910. Maclean, L., Legal Adviser, Johore.

1921. Macmillan, I. C., A. S. P., Penang.

1921. Madge, E. E., Juasseh Estate, Kuala Pilah.

1918. Madge, Raymond, Kuala Lumpur.

1920.	Mahmud, Raja, Bin Raja Ali, Agricultural Officer, Alor Star.
1904.	Mohamed, Dato, Bin Mahbob, Johore Bahru.
1903.	Makepeace, W., c/o Singapore Free Press, Singapore. (Council, 1914, 1916, 1920: Hon. Librarian 1909-1912: Vice-President 1917: Hon. Secretary, 1918-1919).
1921.	Malet, A. H., Singapore.
1921.	Manchester, H. L., Municipality, Singapore.
1922.	Mann, G. E., M.C., B.A., Kuala Lumpur.
1916.	Mann, W. E., Burt Myrtle & Co., Batavia.
1922.	Mansfield, J. T., Cable Depot, Keppel Harbour, Singapore.
1922.	Mansur, Tungku, Bin Sultan Abdul Hamid Halinshah, Kulim.
1907.	*Marriner, J. T., Kuantan, Pahang.
1902.	†Marriott, The Hon. Mr. H., B.A., General Adviser, Johore. (Council, 1907-1908, 1910-1913, 1915-1918: Vice-President 1919-23).
1909.	Marsh, F. E., Municipal Offices, Singapore.
1920.	Marsh, W., Municipality, Singapore.
1909.	Marshall, Harold B., Felbridge East, Grinstead, Sessex.
1918.	Martin, T. A., North Lansdale, B. C., Canada.
1923.	Martyn, C. D., B. N. B. Civil Service, Jesselton.
1921.	Maruzon & Co. Ltd., Tokyo, Japan.
1921.	Mather, N. F., Kuala Lipis, Pahang.
1921.	†Maxwell, C. N., Kuala Lumpur.
1903.	†Maxwell, Hon. Mr. W. G., C.M.G., Chief Secretary, Kuala Lumpur. (Council, 1905, 1915: Vice-President, 1911-1912, 1916, 1918, 1920: President 1919, 1922-1923).
1922.	May, P. W., Oriental Hotel, Bangkok, Siam.
1909.	McArthur, M. S. H., c/o Crown Agents, London.
1920.	McCabe, Dr. J. B., M.C., M.B., Ch.B., Kapoewas Estate, Pontianak, West Borneo.
1897.	McCausland, C. F., Kuala Lumpur.
1922.	McClelland, F. A. S., Kuala Lumpur.
1920.	McIver, Miss Agnes, Education Office, Kuala Lumpur.
1923.	McKerron, P. A. B., District Office, Jasin, Malacca.
1921.	McLeod, D., King Edward's School, Taiping, Perak.
1914.	†Mead, J. P., Forest Department, Kuching, Sarawak.
1920.	Millar, J. W. R., Port Dickson.
1921.	*Miller, J. I., A. D. O., Ipoh, Perak.
1910.	Miller, T. C. B., Fairlie, Nassim Road, Singapore.
1921.	Mills, Commander, J. F., R.N., I.S.O., c/o Crown Agents, London.
1922.	Mjoberg, Dr. E., Curator, Sarawak Museum, Kuching, Sarawak.

1921. Moffat, R. M., Asiatic Petroleum Co. Ltd., Miri, Sarawak.

1922. Mohamed, Tungku, Bin Sultan Abdul Hamid Halimshah, Auditor-General, Alor Star, Kedah.

1922. Mohamad, Ismail Merican, Bin Vafoo Merican Noordin, Legal Advicer's Office, Kedah.

1921. Mohammed, Syed, Ali Idid, Chief Magistrate, Alor Star, Kedah.

1921. Morgan, S., Wilde & Co. Ltd., 12 Market Street, Kuala Lumpur.

1920. *Morkill, A. G., Newfield Hall, Ball Bush, Yorkshire.

1922. Morse, G. S., 27, Grange Road, Singapore.

1923. Morten, F. J., Collector of Land Revenue, Malacca.

1921. *Mouat, Dr. J. R. Kay, King Edward Medical College, Singapore.

1909. *†Moulton, Major J. C., o.b.e., m.a., b.sc., Kuching, Sarawak. (Council 1916- : Hon. Secretary 1920-1923).

1920. Mowbray, G. A., de Chede A. D. O., Kuala Kangsar.

1923. Mulloy, A. A., Sungei Ledang, Kuala Kerbing, F. M. S.

1915. *Mundell, H. D., c/o Sisson & Delay, Singapore.

1920. Murison, Hon. Sir J. W., Singapore (President, 1920-1921, Vice-President 1922).

1913. Murray, Rev. W., m.a., Gilstead Road, Singapore.

1921. Nagalingam, C. K., Anglo-Chinese School, Port Swettenham.

1917. Nagle, Rev. J. S., c/o Board of Foreign Missions, 150, Fifth Avenue, New York, U. S. A.

1922. Nash, G. H., Johore Bahru.

1909. †Nathan, J. E., b.a., Singapore. (Council 1922-1923).

1921. Nathan, S. J., Sarawak Oilfields, Miri, Sarawak.

1921. Neilson, Major J. B., m.c., Education Dept., Alor Star, Kedah.

1920. Neubronner, A. W., 1 Killiney Road, Singapore.

1923. Nicholson, J. E. H., Windermere, St. Thomas Walk, Singapore.

1920. Niven, W. G., 11 Berby Crescent, Kelvinside, Glasgow.

1923. Nixon, H. E., Devon Estate, Malacca.

1900. Norman, Henry, Kota Bharu, Kelantan.

1920. Norris, F. De la Mare, b.sc., f.e.s., Kuala Lumpur.

1906. Nunn, B., Butterworth, Province Wellesley.

1920. Nutt, W. F., o.b.e., Singapore.

1922. O'Connell, Lt. B. M., r.n., Kepong, Selangor.

1911. †O'May, J. O., c/o Harrisons, Barker & Co., Kuala Lumpur.

1916. Ong Boon Tat, 37, Robinson Road, Singapore.

1921. Ong Thye Ghee, 17, Latter St., Rangoon.

1921.	Orchard, H. A. L., St. Andrew's School, Singapore.
1923.	Opie, R. S., Tebak Tin Fields, Kemaman.
1921.	Osborne, R. B., M.V.O., M.C., 56 Rutland Gate, London, S. W.
1920.	O'Sullivan, T. O., Kuala Lipis, Pahang.
1922.	O'Sullivan, W. B., B.A., Ipoh, Perak.
1920.	Osman, Megat, Secretary to Malis Ugama Islam, Kota Bharu, Kelantan.
1913.	†Overbeck, H., c/o Behn Meyer & Co., Mij. Sourabaya, Java.
1922.	Owen, G. N., Jesselton, B. N. B.
1922.	Page-Turner, F. W., Simanggang, Sarawak.
1919.	Park, Mungo, Pontian, Pekan, Pahang.
1921.	Parnell, E., Kuching, Sarawak.
1908.	*†Parr, Lt. Col. C. W. C., C.M.G., O.B.E., British Resident, Perak.
1922.	Pasqual, J. C., Penang.
1921.	*Paterson, Major H. S., Civil Service, Trengganu.
1921.	Peach, Rev. P. L., 4 Mount Sophia, Singapore.
1921.	Pedlow, J., Penang.
1922.	Peel, Hon. Mr. W., British Adviser, Kedah.
1921.	*Pendlebury, H. M., The Museum, Kuala Lumpur.
1914.	†Pepys, W. E., Trengganu.
1920.	Perkins, C. J., Survey Department, Kuala Lumpur.
1917.	Perkins, D. Y., Messrs. Drew & Napier, Singapore.
1920.	Peskett, A. D., 74 Maxwell Road, Penang.
1920.	Peters, E. V., Bundi, Kemaman, Trengganu.
1921.	*Plummer, W. P., Messrs. Derrick & Co., Singapore.
1921.	Ponnambalam, P. N., Johore Bahru, Johore.
1910.	Pratt, Capt. E., Malacca.
1921.	Price, C. W. H., A.S.P., Nigeria.
1906.	Pykett, Rev. G. F., M. E. Mission, Penang.
1921.	Raffles, Major Stamford, O.B.E., Deputy Commissioner of Trade and Customs, Kuala Lumpur.
1915.	Raggi, J. G., Phlab Phla Jai Road, Bangkok, Siam.
1923.	Rambaut, A. E., Forestry Department, K. Lumpur.
1917.	Rattray, Dr. M., Europe Hotel, Singapore.
1916.	Rayman, L., c/o Federal Secretariat, K. Lumpur.
1923.	Reade, C. C., Govt. Town Planner, Kuala Lumpur.
1910.	*Reid, Dr. Alfred, Kuala Lumpur.
1921.	Reis, H. C., Asiatic Petroleum Co. Ltd., Miri, Sarawak.
1921.	Rex, Marcus, Kuala Lumpur.
1915.	Richards, A. F., Secretary to High Commissioner, Singapore.
1921.	Richards, Major F. W., D.S.O., M.C., Sarawak Oilfields, Miri, Sarawak.
1911.	Richards, R. M., The Calcdonia Estate, Province Wellesley.

1923.	Ridout, F. G., Fir Tree Hill, Keppel Harbour, Singapore.
1918.	Ritche, C., The Sagga Rubber Estates, Siliau, F. M. S.
1912.	Robertson, J., Lyall & Evatt, Singapore.
1923.	Robertson, Capt. R. M., Ascot Estate, Port Dickson.
1911.	Robinson, H., c/o Messrs. Swan & Maclaren, Singapore. (Council 1916-1920: Vice-President, 1922-1923).
1904.	†Robinson, H. C., The Museum, Kuala Lumpur. (Vice-President, 1909, 1913, 1922-23: Council, 1920).
1923.	Robson, J. M., Malay Mail, Kuala Lumpur.
1916.	Rogers, A., H.M.I.C.E., Penang.
1921.	Ross, A. E., Labour Office, Penang.
1896.	Rostados, E., Padang Malau Estate, Perlis, Kedah. (Council 1901).
1922.	Russell, D. J. A., Kuala Lumpur.
1921.	Ruston, J. A. V., McNeill & Co., Samarang, Java.
1921.	Rutter, Major E. O., Wattisfield, Croft, Suffolk, England.
1922.	Said, Capt. Haji Mohamad, Bukit Timbalan, Johore.
1921.	Salleh, Dato Mohamed Bin Ali, Johore Bahru, Johore.
1921.	Sanguinetti, Major W. R., O.B.E., M.C., State Engineer, Alor Star, Kedah.
1923.	Sanmugan, S. V., Court Interpreter, Johore Bahru.
1923.	*Sansom, C. H., Commissioner of Police, Johore Bahru.
1919.	Santry, Denis, c/o Swan & Maclaren, Singapore.
1920.	Sathasivam, M., Public Works Dept., Johore Bahru.
1921.	Sauchelli, V., Kent Estate, Batu Caves, Selangor.
1896.	*Saunders, C. J., B.A., Glade House, Tadworth, Surrey, England. (Vice-President 1910-1911, 1914-1915, President 1916-18).
1923.	Savage, H. E., Kuala Lebir, Ulu Kelantan.
1920.	Scharff, Dr. J. W., Health Officer, Singapore.
1921.	Schider, Dr. R., Asiatic Petroleum Co., Miri, Sarawak.
1920.	*Scott, Dr. G. Waugh, Sungei Siput, Perak.
1910.	Scott, Hon. Mr. R., British Resident, Selangor.
1906.	†Scrivenor, J. B., Govt. Geologist, Batu Gajah, Perak. (Vice-President 1922).
1888.	Seah Leang Seah, c/o Chop Chin Hin, Singapore.
1921.	Sear, Duncombe, Harrisons, Barker & Co., Kuala Lumpur.
1915.	*See Tiong Wah, Balmoral Road, Singapore.
1922.	Sehested, S., 7, Battery Road, Singapore.
1923.	Shah, Inche Mahmud Bin Mohamed, Johore Bahru.

1922.	SHAW, G. E., Department of Agriculture, Kuala Lumpur.
1923.	SHEARN, E. D., c/o Pooley & Co., Klyne St., Kuala Lumpur.
1923.	SHEIKH ABDULLAH BIN YAHYA, Staff Lieut., J. M. F., Johore Bahru.
1922.	SHELLEY, M. B., Treasury, Singapore.
1922.	SHELLY-THOMPSON, A. J., Singapore.
1921.	SHERIFF, MOHAMED, BIN OSMAN, Office of the Director of Lands, Alor Star, Kedah.
1921.	SIMPSON, P., Presgrave and Mathews, Penang.
1909.	*SIMS, W. A., c/o Commercial Union Assc., Co., Singapore.
1921.	SIRCOM, H. S., Kuala Lumpur.
1921.	SKRINE, W. F. De V., Kuching Sarawak.
1922.	SMALL, A. S., Education Office, Kuala Lumpur.
1922.	SMART, DR. A. G. H., Kedah.
1921.	SMART, W., Sarawak Oilfields, Miri, Sarawak.
1912.	SMITH, HARRISON W., Papeete, Tahiti.
1921.	SMITH, DR. G. T. F., Asiatic Petroleum Co., Miri, Sarawak.
1921.	SMITH, CAPT. S. R., O.B.E., P. W. D., Kuala Lipis.
1920.	SOH YIEW JIN, 119, Devonshire Road, Singapore.
1910.	SONG ONG SIANG, M.A., L.L.M., c/o Messrs. Aitken & Ong Siang, Singapore.
1921.	SOUTH, F. W., Department of Agriculture, Kuala Lumpur.
1918.	STANTON, DR. A. T., Kuala Lumpur.
1910.	STEEDMAN, R. S., Rahman Hydraulic Tin, Intan, Perak.
1910.	*STILL, A. W., c/o Straits Times, Singapore. (Council 1914-5).
1917.	*†STIRLING, W. G., Singapore.
1922.	STONER, HON. MR. O. F., British Resident, Selangor.
1921.	STOOKE, G. BERESFORD, Kuching, Sarawak.
1921.	STOWELL, DE LA M., English College, Johore Bahru.
1911.	STUART, E. A. G., Alor Star, Kedah.
1921.	STUBINGTON, W. H., Bentong, Pahang.
1910.	†STURROCK, A. J., Ipoh.
1922.	SUMMERHAYES, R., B.SC., Swan and Maclaren, Singapore.
1917.	SUMNER, H. L., c/o Crown Agents, London.
1921.	SUTCLIFFE, H., R. G. A. Reasearch Laboratory, Pataling, Selangor.
1912.	SWAYNE, J. C., Miri, Sarawak.
1923.	SWORDER, H. G., c/o Post Office, Bukit Timah, Singapore.
1918.	*SYKES, G. R., c/o Government Monopolies, Malacca.
1923.	SYMES, DR. R. L., Health Officer, Kinta.
1908.	TAN CHENG LOCK, HON. MR., 59, Heeren Street, Malacca.

1913. Taylor, Lt. Clarence J., Telok Manggis Estate, Sepang.
1921. Taylor, E. R., Estates Dept., Singapore Harbour Board.
1917. Tennent, M. B., c/o Borneo Co. Ltd., Bannar Raheng, Siam.
1921. Terrell, A. K. A. Beckett, Presgrave & Mathews, Penang.
1921. *Thomas, L. A., Asst. Supt. of Police, Singapore.
1920. Thompson, H. W., Residency, Kelantan.
1922. Thompson, S. L., c/o Boustead & Co., Singapore.
1923. Thorne, W. H., Penang.
1923. Travers, Dr. E. O., Kuala Lumpur.
1921. Trewin, H. P., Government Printing Office, Singapore.
1923. Tucker, W. S. Reeves, Sungei Way Estate, Selangor.
1923. Turner, T. A. W. Page, Simanggang, Sarawak.
1921. Tyte, Lt. Col. J. H., Inspector Prisons, Singapore.
1918. Uda, Raja, Kuala Pilah, Negri Sembilan.
1918. Valpy, G. C., B.A., Income Tax Office, Singapore.
1887. †Van Beuningen Van Helsdingen, Dr. R., 74 River Valley Road, Singapore. (Hon. Librarian 1914-1915, 1920).
1922. Vears, Lindsay, Kuala Lumpur.
1921. Wade, F. W., Architect, P. W. D., Alor Star, Kedah.
1921. Waton, B. S., Govt. Monopolies, Penang.
1922. Walker, E. G., United Engineers, Ltd., Singapore.
1923. Wan Idris Bin Ibrahim, Johore Civil Service, Johore Bahru.
1909. Ward, A. B., c/o Sarawak Agency, Millbank, London.
1922. Ward, D. J., 40-5 Grange Road, Singapore.
1920. Warner, Capt. W. H. Lee, Singapore.
1917. Watson, J., Education Office, Kuala Lumpur.
1916. Watson, J. G., Forest Dept., Johore Bahru, Johore.
1916. Watson, Dr. Malcolm, Kuala Lumpur.
1921. Webb, G. R. H., O.B.E., E. E. Telegraph Co., Singapore.
1920. Weisberg, H., District Officer, Jelebu, Negri Sembilan.
1923. White, D. P., Veterinary Surgeon, Malacca.
1923. Whitfield, L. D., High School, Malacca.
1910. Whitehead, C. B., Police Office, Butterworth, P. Wellesley.
1923. Wilkinson, H. B., Bukit Jalil Estate, Pataling, Selangor.
1920. †Wilkinson, R. J., C.M.G., Poste Restante, Mitylene, Greece.
1921. †Willbourn, E. S., Asst. Geologist, Batu Gajah, Perak.

1922. Williams, E. B., Seremban, Negri Sembilan.
1921. Williams, E. T., c/o Secretariat, Singapore.
1922. *Williams, F. L., Chinese Protectorate, Ipoh.
1921. Williams, M., Paterson Simons & Co. Ltd., Singapore.
1910. Williams, S. G., Municipal Offices, Singapore.
1919. Wilson, F. K., Segamat, Johore.
1921. Wilson, Dr. W. B., m.c., 4 Battery Road, Singapore.
1910. *Winkelmann, H., Singapore.
1923. Winson, V. H., Supt. Posts & Telegraphs, Malacca.
1904. †Winstedt, Hon. Dr. R. O., m.a., d. litt., Singapore (Vice-President 1914-1915, 1920-21, 1923-).
1918. Wolde, B., c/o Malacca Club, Malacca.
1902. Wolff, The Hon. Mr. E. C. H., b.a., Alor Star, Kedah.
1908. *Wood, E. G., c/o Messrs. Henry S. King & Co., London.
1913. Wood, W. L., Kuala Semerak, Kelantan.
1922. Woodgate, L. C. H., St. Andrew's School, Singapore.
1923. Woods, A. A., Egerton Road, Seremban.
1922. Woodward, The Hon. Sir L. M., c.j.c., Kuala Lumpur.
1920. †Woolley, G. C., Sandakan, B. N. B.
1922. Woolley, H. W., Forest Dept., Kuala Lumpur.
1922. Worley, N. A., Kuala Lumpur.
1911. Worsley-Taylor, F. E., Singapore.
1905. *Worthington, Hon. Mr. A. F., Kota Bharu, Kelantan.
1921. Wurtzsburg, Capt. C. E., Mansfield & Co. Ltd., Singapore.
1914. Wyley, A. J., Lebong Tandai, Benkoelen, Sumatra.
1922. Yahya, Tungku Wan, Bin Tuan Mohamed Taib, Secretary to Government, Alor Star, Kedah.
1923. *Yates, H. S., Micologist & Botanist, United States Rubber Plantations, Kesaran, Asahan, Sumatra.
1917. *Yates, Major W. G., West Kent Regiment, Cox & Co., 16, Charing Cross, London.
1920. *Yewdall, Capt. J. C., Sitiawan, Lower Perak.
1916. Young, E. Stuart, 85 Wilbraham Road, Chorlton-cum-Hardy, Manchester, England.
1904. *Young, H. S., Rosemount, Tain, Rosshire, Scotland.

RULES
of
The Malayan Branch
of the
Royal Asiatic Society.

I. Name and Objects.

1. The name of the Society shall be 'The Malayan Branch of the Royal Asiatic Society.'

2. The objects of the Society shall be:—

(*a*) The increase and diffusion of knowledge concerning British Malaya and the neighbouring countries.

(*b*) the publication of a Journal and of works and maps.

(*c*) the acquisition of books, maps and manuscripts.

II. Membership.

3. Members shall be of three kinds—Ordinary, Corresponding and Honorary.

4. Candidates for ordinary membership shall be proposed and seconded by members and elected by a majority of the Council.

5. Ordinary members shall pay an annual subscription of $5 payable in advance on the first of January in each year. Members shall be allowed to compound for life membership by a payment of $50. Societies and Institutions are also eligible for ordinary membership.

6. On or about the 30th of June in each year the Honorary Treasurer shall prepare and submit to the Council a list of those members whose subscriptions for the current year remain unpaid. Such members shall be deemed to be suspended from membership until their subscriptions have been paid, and in default of payment within two years shall be deemed to have resigned their membership.

No member shall receive a copy of the Journal or other publications of the Society until his subscription for the current year has been paid.*

7. Distinguished persons, and persons who have rendered notable service to the Society may on the recommendation of the Council be elected Honorary members by a majority at a General

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* **Bye-Law, 1922.** "Under Rule 6 Members who have failed to pay their subscription by the 30th June are suspended from membership until their subscriptions are paid. The issue of Journals published during that period of suspension cannot be guaranteed to members who have been so suspended."

meeting. Corresponding Members may, on the recommendation of two members of the Council, be elected by a majority of the Council, in recognition of services rendered to any scientific institution in British Malaya. They shall pay no subscription: they shall enjoy the privileges of members (except a vote at meetings and eligibility for office) and free receipt of the Society's publications.

III. Officers.

8. The Officers of the Society shall be:—

A President.

Vice-Presidents not exceeding six, ordinarily two each from (i) the Straits Settlements, (ii) the Federated Malay States and (iii) the Unfederated or other Protected States, although this allocation shall in no way be binding on the electors.

An Honorary Secretary.

An Honorary Treasurer.

Five Councillors.

These officers shall be elected for one year at the Annual General Meeting, and shall hold office until their successors are appointed.

9. Vacancies in the above offices occurring during any year shall be filled by a vote of the majority of the remaining officers.

IV. Council.

10. The Council of the Society shall be composed of the officers for the current year, and its duties and powers shall be:—

(*a*) to administer the affairs, property and trusts of the Society.

(*b*) to elect Ordinary and Corresponding Members and to recommend candidates for election as Honorary Members of the Society.

(*c*) to obtain and select material for publication in the Journal and to supervise the printing and distribution of the Journal.

(*d*) to authorise the publication of works and maps at the expense of the Society otherwise than in the Journal.

(*e*) to select and purchase books, maps and manuscripts.

(*f*) to accept or decline donations on behalf of the Society.

(*g*) to present to the Annual General Meeting at the expiration of their term of office a report of the proceedings and condition of the Society.

(*h*) to make and enforce bye-laws and regulations for the proper conduct of the affairs of the Society. Every such bye-law or regulation shall be published in the Journal.

11. The Council shall meet for the transaction of business once a quarter and oftener if necessary. Three officers shall form a quorum of the Council.

V. General Meetings.

12. One week's notice of all meetings shall be given and of the subjects to be discussed or dealt with.

13. At all meetings the Chairman shall in the case of an equality of votes be entitled to a casting vote in addition to his own.

14. The Annual General Meeting shall be held in February in each year. Eleven members shall form a quorum.

15. (i) At the Annual General Meeting the Council shall present a Report for the preceding year and the Treasurer shall render an account of the financial condition of the Society. Copies of such Report and account shall be circulated to members with the notice calling the meeting.

(ii) Officers for the current year shall also be chosen.

16. The Council may summon a General Meeting at any time, and shall so summon one upon receipt by the Secretary of a written requisition signed by five ordinary members desiring to submit any specified resolution to such meeting. Seven members shall form a quorum at any such meeting.

17. Visitors may be admitted to any meeting at the discretion of the Chairman but shall not be allowed to address the meeting except by invitation of the Chairman.

VI. Publications.

18. The Journal shall be published at least twice in each year, and oftener if material is available. It shall contain material approved by the Council. In the first part of each volume shall be published the Report of the Council, the account of the financial position of the Society, a list of members, the Rules, and a list of the publications received by the Society during the preceding year.

19. Every member shall be entitled to one copy of the Journal, which shall be sent free by post. Copies may be presented by the Council to other Societies or to distinguished individuals, and the remaining copies shall be sold at such prices as the Council shall from time to time direct.

20. Twenty-five copies of each paper published in the Journal shall be placed at the disposal of the author.

VII. Amendments to Rules.

21. Amendments to these Rules must be proposed in writing to the Council, who shall submit them to a General Meeting duly summoned to consider them. If passed at such General Meeting they shall come into force upon confirmation at a subsequent General Meeting or at an Annual General Meeting.

Affiliation Privileges of Members.

Royal Asiatic Society. The Royal Asiatic Society has its headquarters at 74 Grosvenor Street, London, W., where it has a large library of books, and MSS. relating to oriental subjects, and holds monthly meetings from November to June (inclusive) at which papers on such subjects are read.

2. By rule 105 of this Society all the Members of Branch Societies are entitled when on furlough or otherwise temporarily resident within Great Britain and Ireland, to the use of the Library as Non-Resident Members and to attend the ordinary monthly meetings of the Society. This Society accordingly invites Members of Branch Societies temporarily resident in Great Britain or Ireland to avail themselves of these facilities and to make their home addresses known to the Society so that notice of the meetings may be sent to them.

3. Under rule 84, the Council of the Society is able to accept contributions to its Journal from Members of Branch Societies and other persons interested in Oriental Research, of original articles, short notes, etc., on matters connected with the languages, archæology, history, beliefs and customs of any part of Asia.

4. By virtue of the afore-mentioned Rule 105 all Members of Branch Societies are entitled to apply for election to the Society without the formality of nomination. They should apply in writing to the Secretary, stating their names and addresses, and mentioning the Branch Society to which they belong. Election is by the Society upon the recommendation of the Council.

5. The subscription for Non-Resident Members of the Society is 30/- per annum. They receive the quarterly Journal post free.

Asiatic Society of Bengal. Members of the Straits Branch of the Royal Asiatic Society, by a letter received in 1903, are accorded the privilege of admission monthly meetings of the Asiatic Society of Bengal, which are held usually at the Society's house, 1 Park Street, Calcutta.

Exchange List and Donations, 1923.

EXCHANGES.

The following is a list of the Institutions and Societies on the Exchange List, together with the Publications received from them during the year 1923.

AMERICA.

Canada.

TORONTO. Royal Canadian Institute.

United States of America.

BALTIMORE. John Hopkins University, *American Journal of Philology, Vol. 42, whole Nos. 166-169, 1923.*

BERKELEY. University of California, *Publications in Zoology, Nos. 2-22, Vols. 1-22, 1921-23. Publications in Entomology, Vol. 1, No. 9, 1922.*

CAMBRIDGE. Museum of Comparative Zoology, Harvard,
- (i) *Annual Report, 1921-22.*
- (ii) *Bulletin, Vol. 65, Nos. 6-9, 1923.*

CHICAGO. Field Museum of Natural History.
- (i) *Annual Report, 1921.*
- (ii) *Anthropological Series, Publications 209, Vol. 14, No. 2, and 211, Vol. 6, No. 5, 1922.*

CHICAGO. University of Michigan,
- (i) *Scientific Series, Vols. 1-2, 1913, and Atlas.*
- (ii) *Annual Reports, 8-12, 1906-1910.*

CHICAGO. John Crerar Library, *Annual Report, 1923.*

LINCOLN. *University of Nebraska.*
- (i) *Annual Report, 1920.*
- (ii) *Bulletin, 182-183, 185, 187-190, 194, 1922-23.*
- (iii) *Research Bulletin, No. 23, 1923.*
- (iv) *Circular, 18 from 36th Annual Report, 1922.*

NEW YORK. American Geographical Society, *Geographical Review, Nos. 1-4, 1923, and supplement to No. 4.*

NEW YORK. American Museum of Natural History, *Bulletin, Vols. 43-45, 1920-22.*

NEW YORK. New York Zoological Society, *Zoologica, Vol. 2, Nos. 17-18 1923, Vol. 3, Nos. 14-23, 1923.*

OBERLIN. Oberlin College—Wilson Ornithological Club, Laboratory, *Bulletin, Nos. 22, 26-31, 1919-22.*

PHILADELPHIA. Academy of Natural Sciences.
(i) *Annual Report, 1921.*
(ii) *Proceedings, Vol. 74, 1922.*
(iii) *Natural History Survey, Bulletin, No. 7, pt. 2, 1923.*

PITTSBURG. Carnegie Museum.
(i) *Annual Report, 1922.*
(ii) *Annals, Vol. 13, Nos. 3-4; Vol. 14, No. 2; Vol. 15, No. 1, 1922.*
(iii) *Memoirs, Vol. 9, Nos. 1-2; Vol. 10, No. 1, 1922.*

ST. LOUIS. Missouri Botanical Garden, *Annals, Vol. 8, No. 3, 1921, Vol. 9, Nos. 1, 3-4, 1922.*

WASHINGTON. Academy of Sciences.

WASHINGTON. Smithsonian Institution, U. S. National Museum,
(i) *Bulletin, 121, 1922 and 123, 1923.*
(ii) *Report on the Progress and Condition of the U. S. Naational Museum, 1922.*

WASHINGTON. United States, Department of Agriculture, *Journal of Agricultural Research, Vols. 23-25, 1923, and Vol. 26, Nos. 1-6, 1923.*

HAWAIIAN ISLANDS. (HONOLULU). Bernice Pauahii Bishop Museum.
(i) *Occasional Papers, Vol. 8, Nos. 4, 6, 7, 1923.*
(ii) *Bulletin, Nos. 1-5, 1922-23.*

ASIA.

Ceylon.

ANURADHAPURA. Archaeological Survey of Ceylon, *Annual Report, 1921-22.*

COLOMBO. Ceylon Branch, Royal Asiatic Society.

COLOMBO. Colombo Museum. *Spoila Zeylanica, Vol. 12, Pt. 46, 1923.*

India.

BOMBAY. Bombay Branch, Royal Asiatic Society, *Journal, No. 74, Vol. 26; No. 1, 1921-22.*

BOMBAY. Bombay Natural History Society, *Journal Vol. 28, No. 4, 1922; Vol. 29, Nos. 1-2, 1923.*

CALCUTTA. Asiatic Society of Bengal,
(i) *Journal and Proceedings, Vol. 7, No. 4, 1921; Vol. 8, Nos. 1-8, 1922-23.*
(ii) *Memoirs.*

CALCUTTA. Indian Museum.
(i) *Records, Vol. 21, Pts. 2-3, 1921, Vol. 24, Pt. 4, 1922, Vol. 25, Pts. 1-4, and Indices to Vols. 13 and 22, 1923.*
(ii) *Memoirs, Vol. 5, No. 11, 1922, Vol. 7, No. 4, 1922.*
(iii) *Annual Reports, 1920-23.*

CALCUTTA. University of Calcutta, *Journal of the Department of Letters, Vols. 9-10, 1923.*

LAHORE. Panjab Historical Society, *Journal, Vol. 8, No. 2, pp. 103-206, 1921.*

PUSA. Agricultural Research Institute.

SIMLA. Archaeological Survey of India,
- (i) *Memoirs, No. 14, 1923.*
- (ii) *Epigraphia Indica, Vol. 16, Pts. 6-7, Vol. 17, Pts. 1-2 and 4, 1923.*
- (iii) *Annual Report, 1916.*
- (iv) *Conservation Manual, by Sir John Marshall.*

Burma.

RANGOON. Archaeological Survey of Burma, *Annual Report, 1923.*

RANGOON. Burma Research Society,
- (i) *Journal, Vol. 12, Pts. 2-3, 1922, Vol. 13, Pts. 1-2, 1923.*
- (ii) *Archaeological Survey of India, Vol. 3, Pt. 1, 1923.*

British Malaya.

BORNEO, (SARAWAK). Sarawak Museum.

MALAY PENINSULA, (KUALA LUMPUR). Department of Agriculture, S. S. and F. M. S., *Malayan Agricultural Journal, Vols. 10-11, 1922-23.*

MALAY PENINSULA, (KUALA LUMPUR). F. M. S. Museums, *Journal, Vol. 8, Pt. 2, 1923, Vol. 9, Pt. 4, 1922, XI, Pts. 1-2, 1923.*

SINGAPORE. Botanic Gardens, *Gardens Bulletin, Vol. 3, Nos. 1-3, 1923.*

SINGAPORE. Singapore Natural History Society, *The Singapore Naturalist No. 2, 1923.*

SINGAPORE. Raffles Museum and Library, *Annual Report, 1922.*

Dutch East Indies.

JAVA, (BATAVIA). Bataviaasch Genootschap van Kunsten en Wetenschappen,
- (i) *Notulen van de Algemeene en Directievergaderingen, Deel 59, Pt. 4, 1921.*
- (ii) *Tijdschrift voor Indische Taal-, Landen Volkenkunde, Deel, 61, Pts. 4-6, 1922, Deel, 62, Pts. 1-3, 1923.*
- (iii) *Oudheidkundig Verslag, Pts. 2-4, 1922, Pt. 1, 1923.*
- (iv) *Oud Batavia, Eerste Deel and Tweede Deel, 1919.*
- (v) *Naturukundig Tijdschrift voor Nederlandsch-Indie, Deel 82 and 83, 1922-23.*
- (vi) *Rapporten, 1923.*
- (vii) *Schets du Karo-Bataksche Spraakunst, Deel 63, 1922.*
- (viii) *Lajang Damar- Woelan (Javaansche Tekst).*

JAVA, (BATAVIA). Commissie voor de Volkslectuur,
  (i) *Jaarboek van het Mijnwezen in Nederlandsch Oost-Indie, 1920 and 1921.*
  (ii) *Atlas Behoorende bij het jaarboek, 1919, 1920, and 1921.*
  (iii) *Bijlagen, 1919.*

JAVA, (BATAVIA). Het Algemeen Proefstation der A.V.R.O.S., *Mededeelingen,*
  (i) *Rubberserie, Nos. 37-38, 1923.*
  (ii) *Algemeene Serie, Nos. 15-17, 1923.*

JAVA, (BATAVIA). Topografische Dienst, *Jaarverslag, 1921 and 1922.*

JAVA (BUITENZORG). Bibliotheek van het Department van Landbouw, Nijverheid en Handel, *Treubia, Vol. 3, Pts. 1-4, 1922-23, Vol. 4, Pts. 1-4, 1923.*

JAVA, (BUITENZORG.) Jardin Botanique de Buitenzorg. *Bulletin, Ser. 3, Vol. 5, Pts. 3-4, 1922-23.*

Siam.

BANGKOK. Natural History Society of Siam, *Journal, Index to Vol. 4, Vol. 5, Vol. 6, Pts. 1-2, 1923.*

BANGKOK. Siam Society, *Journal, Vol. 17, Pt. 3, 1923.*

BANGKOK. Vajiranana National Library, *Publications.*

Indo-China.

HANOI. L'Ecole Francaise de l'Extreme Orient, *Bulletin, Tome 21, No. 2, 1921, Tome 22, 1922.*

SAIGON. La Societe des Etudes Indo-Chinoises.

Philippine Islands.

MANILA. Bureau of Science, *Philippine Journal of Science, Vol. 21, No. 6, 1922, Vol. 22, Nos. 2-6, 1923, Vol. 23, Nos. 1-5, 1923.* . .

China.

SHANGHAI. North China Branch, Royal Asiatic Society,
  (i) *Journal, Vol. 54, 1923.*
  (ii) *Anthropology of Northern China, Extra Vol. 2, 1923.*

Japan.

TOKYO. Asiatic Society of Japan.

Australia.

ADELAIDE. Royal Society of South Australia.
  (i) *Transactions and Proceedings, Vol. 46, 1922.*
  (ii) *Index to Transactions, Proceedings and Reports, Vols. 25-44, 1901-1920.*
  (iii) *Index to Memoirs, Vols. 1-11, 1899-1912.*

SYDNEY. Royal Society of New South Wales.

EUROPE.

Belgium.

BRUXELLES. Societe Belge d'Etudes Coloniales.

Finland.

HELSINGFORS. Finska Vetenskaps- Societeten,

(i) *Acta Societatis Scientiarum Fennicae, Tome 50, Pts. 4-5 1922.*

(ii) *Commentationes Humanarum Litterarum, Tomus 1, Nos. 1-2, 1922.*

(iii) *Commentationes Physico-Mathematicae, Tomus 1, Nos. 26-43, 1922.*

(iv) *Commentationes Biologicae, Tomus 1, Nos. 4-6, 1922-23.*

(v) *Arsbok-Vuosikirja, Vol. 1, 1922-23.*

France.

HAVRE. Société de Géographie du Havre, *Bulletin 39, 1922.*

MARSEILLES. Société de Géographie et d' Etudes Coloniales.

(i) *Bulletin, Tome 43, 1920-1921.*

(ii) *Exposition Coloniale Nationale de Marseille- Semaine- Internationale des Géographes des Explorateurs et des Ethnologues, 1922.*

PARIS. Commission Archéologique de l'Indo-Chine.

PARIS. L'Ecole des Langues Orientales.

PARIS. Société Asiatique de Paris,

(i) *Journal Asiatique, 11 Serie, Tome 20, Nos. 1-2, 1922.*

(ii) *Table Générale des Matiéres, 11 Serie, (1913-1922) 1922.*

(iii) *Les Fetes du Centenaire,—1922. 1923.*

(iv) *Journal Asiatique, Tome 202, No. 1, 1923.*

PARIS. Société de Géographie, *La Géographie, Tome 40, Nos. 4-5, 1923.*

PARIS. Société de Géographie Commerciale de Paris, "*Revue Economique Francaise,*" *Tome 44, Pts. 4-5, 1922, Tome 45, Pts. 1, 2, and 4, 1923.*

PARIS. Société de l'Histoire des Colonies Francaises.

PARIS. Société de Linguistique de Paris.

(i) *Memoirs, Tome 23, fasc. 1, 1923.*

(ii) *Bulletin, No. 73, 1923.*

Germany.

BERLIN. Deutsches Institut d'Entomologie,

(i) *Entomologische Mitteilungen, Bd. 12, Nos. 1-4, 1922-23.*

FRANKFURT. Senckenbergischen Naturforschenden Gesellschaft, *Senckenbergiana, Bd. 1-4, 1919-22, Bd. 5, Nos. 1-4, 1923.*

Great Britain.

LONDON. British Museum (Natural History).

LONDON. Royal Anthropological Institute, *Journal, Vol. 52, July-December, 1922.*

LONDON. Royal Asiatic Society of Great Britain and Ireland,
(i) *Journal, Vol. 53, 1923.*
(ii) *Centenary Volume, 1823-1923. 1923.*

LONDON. Royal Botanic Gardens, Kew, *Bulletin, 1922.*

LONDON. Royal Colonial Institute, *Vol. 13, No. 12, 1922, Vol. 14, Nos. 1-10, 1923.*

LONDON. School of Oriental Studies, London Institution, *Bulletin, Vol. 2, Pt. 4, 1923, Vol. 3, Pt. 1, 1923.*

LONDON. Zoological Society of London,
(i) *Proceedings, Pts. 1-4, 1923.*
(ii) *A List of Fellows, Members and Medallists, 1923.*

Holland.

AMSTERDAM. Koloniaal Instituut, *Jaarverslag, 1922.*

AMSTERDAM. Koninklijk Nederlandsch Aardrijkskundig Genootschap,
(i) *Tijdschrift, Deel, Pts. 1-5, 1923.*
(ii) *Systematisch Register van het Tijdschrift van het Koninklijk Nederlandsch Aardrijkskundig Genootschap, 1923. (Jaargang 1905 tot en met 1922). 1923.*
(iii) *Geological Petrographical and Palaeontological Results of Explorations carried out from 1917-1919 in the Island of Ceram, by L. Rutten and W. Holtz.*

HAGUE. Koninklijk Instituut voor de Taal-, Land, en Volkenkunde van Nederlandsch Indie,
(i) *Bijdragen, Deel 79, Pt. 3, 1923.*
(ii) *Was Malaka Emporium voor 1400 A.D., Genaamd Malajoer? En Waar Lag Woerawari, Ma-Hasin Langa, Batoesawar? door G. P. Rouffaer, (Being a reprint from the Bijdragen, Deel, 77, Pts. 3-4, 1921).*
(iii) *Lijst der Leden Enz. op. 1 April, 1923.*

LEIDEN. Ethnographisches Reichsmuseum, *Verslag van den Directeur, October, 1921 to September, 1922.*

LEIDEN. Universiteits Bibliotheek.

LEIDEN. 's Rijks Museum van Natuurlijke Histoire, *Zoologische Mededeelingen, Vols. 1-5, 1915-1920, Vol. 6, Pts. 1-3, 1921, Vol. 7, Pts. 1-2, 1922.*

Sweden.

STOCKHOLM. K. Svenska Vetenskapsakademien Handlingar.

UPSALA. Royal University Library, *Zoologiska Bidrag, Bd. 8, 1923.*

Switzerland.

Zurich. Naturforschende Gesellschaft, *Vierteljahrschrift, Bd. 67, Pts. 3-4, 1922, Bd. 68, Pts. 1-2, 1923.*

Donations.

America (North).

Canada.

HALIFAX. Nova Scotian Institute of Science, *Proceedings and Transactions, Vol. 15, Pt. 2, 1919-20.*

OTTAWA. Canada Department of Mines.

(i) *Bulletin, 35, 1922.*

(ii) *Memoirs, Nos. 129, 130, 132, being Nos. 110, 111, and 113, Geological Series.*

(iii) *Summary Report, 1921, Pts. B and E.*

(iv) *Summary Report (Mines Branch) 1921.*

(v) *Report for the Fiscal Year ending March 31, 1922.*

(vi) *Titanium, by A. H. A. Robinson, 1922.*

(vii) *Silica in Canada: its occurrence, exploitation and uses, 1923 (Mines Branch).*

United States of America.

BOSTON. Museum of Fine Arts, *Bulletin, Vol. 20, No. 122, 1922, Vol. 21, No. 123, 1923.*

CINCINNATI. Lloyd Library, *Mycological Notes, Vol. 7, Nos. 1-2, 1922.*

ITHACA. Cornell University Agricultural Experiment Station,

(i) *Memoirs, 15 numbers, 1921-1923.*

(ii) *Bulletin Nos. 411-413, 1922.*

MISSOULA. University of Montana, *Bulletin 255, 1922-23.*

NEW ALBANY. Contribution to Indiana Palaeontology, by G. K. Greene. *Vol. 1, Pts. 1-20, 1898-1904; Vol. 2, Pts. 1-3, 1906.*

America (South).

Brazil.

SAN PAULO. Museu Paulista, *Revista do Museu Paulista, Tome 13.*

Mexico.

MEXICO. Instituto Geologico de Mexico, *Boletin, Nos. 38, 39, 42, 1922-23.*

ASIA.

British Malaya.

MALAY PENINSULA, (KUALA LUMPUR). Evans (I. H. N.) Studies in Religion, Folklore, and Custom in British North Borneo and the Malay Peninsula. *1923. Presented by the Author.*

MALAY PENINSULA, (BATU GAJAH). Newton (R. Bullen) On Marine Triassic Shells from Singapore, *1923. Presented by J. B. Scrivenor.*

SINGAPORE. Winstedt (R. O.) Malaya: The Straits Settlements and the Federated and Unfederated Malay States, *1923. Presented by the Author.*

SINGAPORE. Botanic Gardens, *Bulletin, Vol. 3, Nos. 1-3, 1923.*

Dutch East Indies.

JAVA, (BATAVIA). Balai Poestaka, "*Sri Poestaka,*" *1923.*

JAVA, (BATAVIA). Sluyter's and Co. *East Indian Magazine, Vol. 3, No. 11, 1923.*

Siam.

BANGKOK. Royal Survey Department of the Army. *Report, 1920-21.*

Philippine Islands.

MANILA. Bureau of Printing.
(i) *Leyes Publicas, Tome 16, 17, 1923.*
(ii) *El Caracter de Rizal, 1923.*

Japan.

TOKYO. Kaiserliche Universitat zu Tokyo, *Mitteilungen aus der Medizinischen Fakultat, Bd. 30, H. 1, 1922.*

TOKYO. Ornithological Society of Japan, *Bulletin, Vol. 3, Nos. 14-15, 1923.*

EUROPE.

Egypt.

CAIRO. Ministry of Public Works, *Zoological Service Report. Publications Nos. 37-38, 1923.*

France.

BEAUVAIS. Janet (Charles) Considérations sur l'être vivant, *Pt. 2, 1921. Presented by the Author.*

PARIS. Société D'Editions Géographiques Maritimes et Coloniales, *La Revue Maritimes, Nouvelle Série No. 38, 1923.*

Holland.

HAGUE. Linschoten-Vereeninging, *Vijftiende Jaarverslag, 1922.*

LEIDEN. Rijk's Herbarium,
(i) *Mededeelingen, Nos. 42-47, 1922.*
(ii) *Zoologische Mededeelingen, Deel 7, Pts. 3-4, 1923.*

Italy.

ROME. Reale Societa Geografica Italiana, *Bolletino, Serie 5, Vol. 11, Pts. 9-12, 1922; Vol. 12, Pts. 1-6, 1923.*

TRIESTE. Accademia Scienza ed Arte, *Annali di Teosofia.*

Annual Report.

of the

Malayan Branch, Royal Asiatic Society

for 1923.

Membership. The membership of the Society at the close of the year stands at 627, as compared with a total of 543 at the end of 1922. There are 15 Honorary Members, 4 Corresponding Members and 608 Ordinary Members.

During the year 90 new Members were elected by the Council. Their names are :—

HONORARY MEMBER.

Dr. W. L. Abbott.

ORDINARY MEMBERS.

Dato Sedia Raja Abdullah
Mr. E. C. Hicks
Mr. C. O. Beamish
Mr. Eu Tong Sen, O.B.E.
Rev. Keppel Garnier
Mr. A. E. Coleman Doscas
Mr. C. H. Sansom
Mr. H. S. Yates
Mr. G. O. Blacker
Mr. J. V. Cowgill
Mr. F. E. Lease
Mr. H. P. Hacker
Mr. H. T. Clarkson
Mr. E. W. P. Gilman
Mr. P. H. V. Hanitsch
Mr. J. A. Lacomblé
Mr. W. F. N. Churchill
Mr. L. R. Daines
Mr. A. Gilbertson
Mr. A. E. Rambaut
Mr. A. T. Hancock
Mr. S. V. Sanmugam
Mr. A. A. Woods
Mr. P. A. Anthony
Mr. A. V. Aston
Mr. Arnold Bailey
Mr. C. W. Bresland
Mr. J. G. Black
Mr. J. V. Boothby
Mr. R. O. Brunton
Mr. R. J. F. Curtis
Mr. G. Hemmant
Mr. A. A. Henggeler
Dr. H. Kraemer
Mr. A. A Lermit
Mr. P. A. B. McKerron
Mr. F. J. Morten
Mr. H. E. Nixon
Mr. C. C. Reade
Capt. R. M. Robertson
Mr. J. M. Robson
Dr. E. O. Travers
Mr. L. D. Whitfield
Mr. D. P. White
Mr. H. B. Wilkinson
Capt. F. W. Howl
Mr. T. A. W. Page Turner
Mr. F. E. Becker
Mr. J. W. Campbell
Mr. F. Cobbe

Mr. E. V. G. Day
Inche Abdul Kader bin Daud
Mr. H. Egmont Hake
Mr. A. D. Holland
Mr. W. H. Thorne
Mr. W. S. Reeves Tucker
Mr. V. H. Winson
Mr. W. S. Cookson
Mr. Gan Khek Keng
Mr. A. Gilmour
Mr. C. J. K. Grieve
Mr. Sidney Halford
Major O. B. Haines
Mr. C. D. Martyn
Mr. A. A. Mulloy
Mr. F. G. Ridout
Mr. G. H. Sworder
Dato Abdullah bin Jaafar
Mr. J. A. Black
Inche Ahmad bin Andah
Wan Idris bin Ibrahim
Sheikh Abdullah bin Yahya
Mr. H. C. Bathurst
Mr. N. D. Dalton
Mr. H. G. Gardner
Dr. P. Witners Green
Mr. F. Hartnett
Inche Mahmud bin Mohamed Shah
Mr. G. E. Greig
Mr. R. S. Opie
Mr. J. M. Barron
Mr. P. B. F. Burr
Mr. George R. Fulton
Mr. G. A. R. Gater
Mr. D. H. Hodgson
Mr. J. E. H. Nicholson
Mr. H. E. Savage
Mr. E. D. Shearn
Dr. R. L. Symes

The Society lost by deaths Mr. W. R. T. Clement, Capt. H. R. Adams, Mr. A. G. Bratton, Mr. E. R. Koek, Mr. P. C. Russell, Mr. W. D. Vissers and Mr. D. M. Barry.

Two resigned their membership during the year.

Council. The Council lost by retirement from Malaya Mr. H. Robinson, for some years a Vice-President for the Straits Settlements, and Mr. J. E. Nathan, a Member of the Council; Major J. C. Moulton, O.B.E., after serving as Honorary Secretary since 1921, resigned and was succeeded by Mr. C. Boden Kloss. Messrs. A. F. Richards and W. G. Stirling were co-opted to fill vacancies in the Council.

General Meeting. The Annual General Meeting was held on the 10th February at Kuala Lumpur, F. M. S. This is the first time the Society has held a meeting outside Singapore and the departure from custom was taken to signalise the change of name from "Straits Branch" to "Malayan Branch," Royal Asiatic Society. The meeting was followed by a dinner at the Selangor Club at which were present H. E. Sir Laurence Guillemard, Patron of the Society, and 52 members and their guests.

Journals. Two journals of 392 pages with eleven plates, one map and a number of text-figures were issued during the year; one in April and one in October; while a third has been in the printer's hands for some time. The published numbers contain twenty-two short notes and twenty-two longer contributions dealing with Zoology, Botany and Geology, History, Numismatics, Languages and Literature, Folklore and Tales. The shorter papers are equally catholic in nature.

Several important papers are in hand but the Council anticipates difficulty in meeting the cost of publication of all contributions offered.

Finances. The "Life Members' Reserve" stands at $4700 against a membership of eighty-nine. In addition there are 20 Honorary and Corresponding Members who pay no subscription.

The Society finishes the year with a bank balance of $1585.64 (of which $500, a contribution from the Federated Malay States Government, is to be reserved for printing "Trong Pipit") as against $2378.84 at the end of 1922. This difference is due chiefly to the following facts:—

1. In 1923 13 members compounded for Life Membership as again 26 in 1922.

2. Revenue from sale of Journals and Maps was $540 less in 1923 than in 1922.

3. In 1922 $490 was received in payment of subscriptions for the year 1923-26, in 1923 advance subscriptions amounted to $125.

4. The amount spent on printing was $400 more in 1923 than in 1922, chiefly owing to additional expenditure on illustrations. As against this the Society is due to receive $200 from the Government of Kedah towards the cost of printing the Geological Map of Langkawi.

Subscriptions for 1923 and previous years still unpaid amounted to about $1200.

Library. The library of the Society, hitherto kept in the Society's room, was transferred "on permanent loan" to the Raffles Library. But little use had been made of the library hitherto and it was felt by the Council that it would receive more attention and care in the larger library where, with the works dealing with Malaysia belonging to the latter, the Society's books will be available to members at any time.

In the Annual Report for 1922 attention was drawn to the large increase in the number of publications received by donation and also by exchange. The number received in 1922 was 352 as against 525 in 1923. Six Institutions were added to the Exchange list during the year thus bringing the total up to 87.

Royal Asiatic Society. The Centenary of the Royal Asiatic Society was celebrated in London in July: Messrs. H. N. Ridley, C.M.G. and I. H. Burkill with Dr. R. Hanitsch, represented the Malayan Branch.

C. BODEN KLOSS,
Hon. Secretary.

MALAYAN BRANCH, ROYAL ASIATIC SOCITY.

Receipts and Payments Account for the year ending December, 31st.

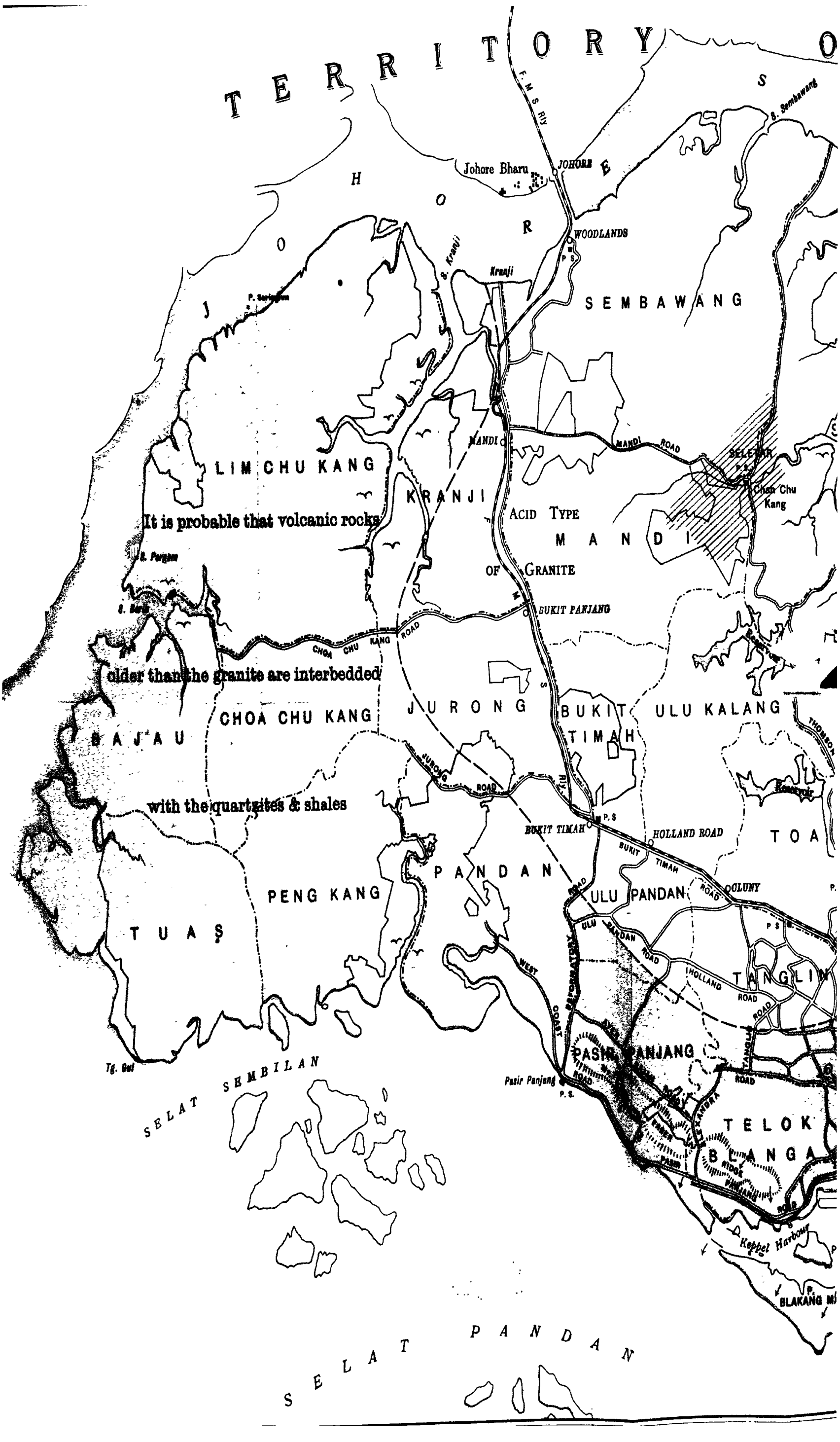
Receipts.

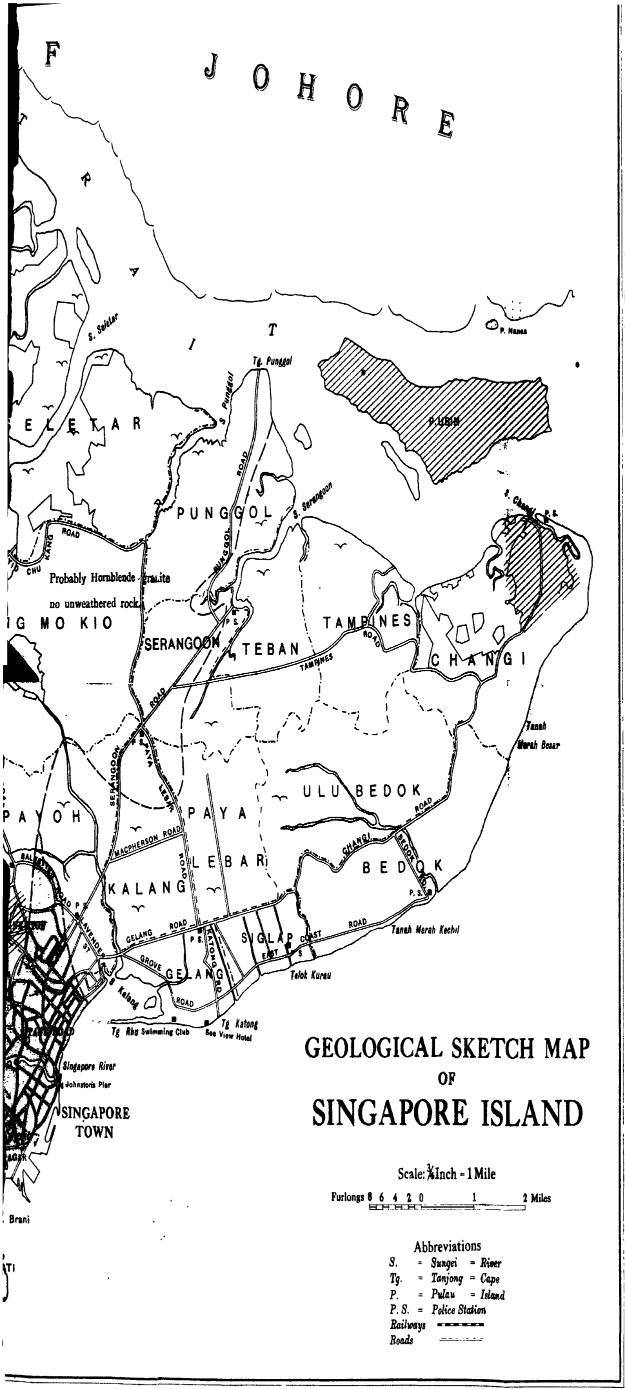
To balance at Mercantile Bank	$2,378.84	
Petty Cash in hand, Jan. 1st	25.17	
		$2,404.01
„ Subscriptions		
for the year 1923	1,474.75	
for previous years	235.00	
for 1924-26	125.00	
Life Members	650.00	
		2,484.75
„ Interest		
on Investments	245.00	
on Current Account	43.44	
		288.44
„ Sales		
Journals	564.13	
Maps	168.74	
		732.87
„ Subsidy from the Government of Kedah for printing Trong Pipit		500.00
„ Profit on Annual Dinner		57.00
		$6,467.07

Payments.

By Printing		
Journal Vol. I, part 1	$2,450.39	
Journal, Vol. I, part 2	872.11	
Illustrations	333.69	
Geological Map	310.00	
Circulars, etc.	77.75	
Line blocks for Journal No. 86	43.20	
		$4,087.14
„ Stationary	34.53	
„ Postage	199.04	
„ Salaries	398.00	
		631.57
„ Bookbinding		58.00
„ Refund of excess payments		27.27
„ Commission on cheques		13.85
„ Sundries		39.83
„ Cash		
Balance at Mercantile Bank Dec. 31st	1,585.64	
Petty Cash in hand	23.77	
		1,609.41
		$6,467.07

R. E. Holttum,
Hon. Treasurer.


TERRITORY O
J O H O R E
S
S. Sembawang
F. M. S. Rly
Johore Bharu
JOHORE
WOODLANDS
P. S.
S. Kranji
Kranji
P. Seringgan
SEMBAWANG
MANDI
MANDI ROAD
SELETAR
P. S.
Chan Chu Kang
LIM CHU KANG
KRANJI
ACID TYPE
M A N D I
OF GRANITE
It is probable that volcanic rocks
older than the granite are interbedded
with the quartzites & shales
S. Pengan
S. Berih
BUKIT PANJANG
CHOA CHU KANG ROAD
Reservoir
BAJAU
CHOA CHU KANG
JURONG
BUKIT TIMAH
ULU KALANG
THOMSON
JURONG ROAD
Reservoir
RLY.
P. S.
BUKIT TIMAH
HOLLAND ROAD
BUKIT TIMAH ROAD
TOA
PENG KANG
PANDAN
ULU PANDAN
CLUNY
ROAD
TUAS
ULU PANDAN ROAD
HOLLAND ROAD
TANGLIN
WEST COAST
REFORMATORY
AYER RAJAH ROAD
PASIR PANJANG
PASIR PANJANG ROAD
Pasir Panjang
P. S.
TANGLIN ROAD
ALEXANDRA
TELOK BLANGAH
RIDGE
Tg. Gul
SELAT SEMBILAN
Keppel Harbour
P. BLAKANG MATI
SELAT PANDAN



GEOLOGICAL SKETCH MAP
OF
SINGAPORE ISLAND

Scale: ¼ Inch = 1 Mile

Furlongs 8 6 4 2 0 1 2 Miles

Abbreviations

S. = Sungei = River
Tg. = Tanjong = Cape
P. = Pulau = Island
P. S. = Police Station
Railways ▬▬▬
Roads ═══

Drawn & Printed by F M S. Surveys No 307-1923

INDEX TO GEOLOGICAL MAPS
published by the
Geological Dept. F. M. S.

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Rhyolite & quartz-porphyry younger than the granite.	■
Quartz-veins	▬
Granite-porphyry	■
Granite & allied very acid rocks	G.
Hornblende-granite.	▨
Syenite.	▧
Gabbro & Norite	■
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Serpentine	■
Diorite.	D R.

The Geology of Singapore Island.

With a geological Sketch-map.

By J. B. Scrivenor.

The geology of Singapore Island has been dealt with in a few old papers by Logan and others. In the Geological Magazine for 1901 Mr. R. Bullen Newton gives a list of these papers under the title "Notes on Literature bearing on the Geology of the Malay Peninsula" (Geol. Mag. 1901 pp. 128-134) and since then Mr. Newton has described fossils found at Mount Guthrie (Fossils from Singapore, Geol. Mag. 1906 pp. 487-496) and I have published two short papers (Notes on the Igneous rocks of Singapore etc., Geol. Mag. 1909. pp. 17-22, and, The Sedimentary Rocks of Singapore, Geol. Mag. 1908. pp. 289-291). In "The Igneous rocks of Pulau Ubin and Pulau Nanas" (Quarterly Journal Geol. Soc. London LXVI, 1910. pp 420-434). I have discussed in some detail the petrology of the granite and associated igneous rocks on Pulau Ubin and at Changi.

The object of the present paper is to give a general account of the geology of Singapore Island without entering into minute petrological detail. The petrology of the igneous rocks is very interesting but I have very little to add to what has been already published, and the subject, moreover, is one that only appeals to specialists.

The results given now are the outcome of field work in Singapore during a few visits spread over a long period, but the greater part was done recently in 1922.

The map that accompanies this paper attempts to give the limits of the geological formations. Owing, however, to the extent to which the rocks are weathered and the abundant vegetation, these limits can only be taken as rough approximations. By searching enquiries in gardens and the back premises of dwelling-houses it would doubtless be possible to improve them, but the result would not be worth the embarrassment experienced by the enquirer, and the annoyance of the house-owners. Geological-mapping in the heart of Singapore Town is a different thing from the same work in the heart of the jungle; and diffidence has forced me to leave unsettled the momentous question whether Government House is on granite, or sandstone and shale, or on the junction of these two formations.

On the Choa Chu Kang Road and the Jurong Road the boundary of the granite is clear. It is also fairly easy to locate on the Reformatory and Ubi Pandau Roads. From there to Cavanagh Road it is hard to follow. On Cavanagh Road the granite appears to extend eastward towards Government House. The filter-beds north-west of Cavanagh Road are on granite; the filter-beds south-east of Cavanagh Road are on shale and sandstone: the junction must almost coincide with the junction of Cavanagh and Newton Roads. On Ballestier Road the granite-junction can be located fairly closely, beyond that it is indefinite and the junction of granite and alluvium must be taken as a very rough approximation based on surface features. The landward limits of the granite at Changi are aslo indefinite.

General features.

Singapore Island has, roughly, a diamond-shape. The long diagonal lies east and west, with Changi at the eastern extremity: The short diagonal lies north and south with Mount Faber and the islands Pulau Brani and Blakang Mati about the southern end.

The most pronounced physical feature in Singapore Island is the long ridge of which Mt. Faber is a part, though divided by a depression through which the Alexandra Road runs. The Mount Faber Ridge trends north-west and south-east. Beyond the ridge, which is all formed of sandstone (weathered quartzite) and shale, is a large stretch of rolling country forming the west of the island and composed, as far as can be judged from the scanty evidence, of sandstone and shale with ironstone (laterite) on the surface. Judging from evidence in the Straits of Johore, however, and in Johore, it is probable that in this area there are volcanic rocks and hypabyssal rocks associated with the sandstone and shale. The Kranji and two other rivers have a little alluvium covering the sandstone and shale.

North-east of Mt. Faber is Singapore Town, the greater part of which is built on sandstone and shale. These rocks formed Mt. Guthrie, now cut away, and can be seen to-day in what remains of Mt. Palmer, Mt. Wallich, the hill on which Fort Canning stands, Pearl's Hill, Mount Sophia, and Mt. Emily. In 1905 they were well exposed on the site of the Tan Tok Seng Hospital, between the Ballestier and Moulmein Roads. Sepoy Lines, the Prison, and Pearl's Hill Reservoir are believed to to be also entirely on these rocks. Pulau Brani and Blakang Mati are formed of the same rocks. The southern angle of the island, then, comprising the greater part of Singapore Town, the Mt. Faber Ridge and the important islets, Pulau Brani and Blakang Mati, is formed of sandstone and shale. Close to the north of the angle and forming part of the land on which the town is built, is the granite, which has been intruded into the sedimentary rocks.

In this southern part of its outcrop the granite does not form any marked features. Its limit is hard to trace: nearly all the rock is weathered and very soft. The only hard granitic rocks I have seen in or near Singapore Town are between the railway and the filter-beds near Newton Road Station, and near the railway west of Barker Road. Goodwood Hill, Monks Hill, Cairn Hill, and the land round the Botanical Gardens are believed to be formed of this rock, judging from the soil and traces of much weathered rock found here and there.

The only marked natural features in the whole granite area are Bukit Timah, Bukit Panjang and other hills near them. The best view of them is obtained from the Mt. Faber ridge. They are low, unimposing hills, but have proved very useful as the source of hard stone for the Johore Causeway, railway ballast, and road-metal.

East of the north-and-south diagonal of the island the granite continues as low rolling ground, and there is reason to believe that it is joined to the granite of Changi, from which it would follow that nearly the whole of the east of the island is granite, but covered with alluvium over a great part of the area. The part certainly not granite is that formed of shale and sandstone in the neighbourhood of the Ballestier Road. How far this shale and sandstone extend under the alluvium is not known, and I must repeat that the boundaries of granite and sandstone and shale is this part of the island are hard to locate on the surface.

Changi, at the extreme east of the island, is granite and close to the granite island Pulau Ubin, where large quarries are worked. Between Changi and Singapore Town is an extensive area of alluvium and what I have termed "high-level alluvium" which will be described later. The high-level alluvium forms hilly land along the Changi and Tampines Roads and is best exposed at Tanah Merah Kechil.

Beyond Blakang Mati are many other islets south of Singapore. Some of these, if not all, are known to be of shale and sandstone, but I have never visited them and they are outside the scope of this paper.

The shale and sandstone.

Good exposures of these rocks can be seen at "The Gap" on the Mount Faber Ridge, Pearl's Hill, the Alexandra Brick Works, Mt. Palmer, and the hills in the neighbourhood of the Tramway Company's Power Station. The best exposures, however, are on the land forming the limits of Keppel Harbour. Before the Tan Tok Seng Hospital was built there was another good exposure of these rocks on the site.

That these rocks are older than the granite is sufficiently clear from the high inclination of the bedding in many places. The Mount Faber Ridge runs roughly parallel to the granite margin and the general dip of the strata is to the south-west, but there are local variations, as for instance at the top of the Gap, where in a small section the dip is reversed, although the general south-west dip is obvious on the Buena Vista road leading up from the seashore.

At Mt. Guthrie, a hill now cut away that was situated off the Anson Road, near the entrance to the docks, the dip of shale and sandstone was 75° to the west-south-west, but local variations occurred there also.

In Keppel Harbour there are good exposures on Blakang Mati, the mainland, on "St. James" and Pulau Hantu. At the narrow entrance to the harbour they are well exposed on either shore and are practically vertical, striking about north-west and south-east.

On Pearl's Hill the sandstone and shale dip towards the south-east. On Mt. Emily the beds are highly inclined towards the north-east; at the Filter Beds they dip a little south of east; near the Tan Tok Seng Hospital they dip to the south-east.

The vertical strata on Blakang Mati, and high dips elsewhere, show that these rocks have been greatly disturbed by earth-movements. If the beds were younger than the granite the same earth-movements must have affected the granite also, but there is no sign of such movements in the granite, which is well exposed in several quarries, therefore one must conclude that the granite is younger than the sedimentary strata and was intruded as a consequence of the earth-movements that tilted the latter. No metamorphosed rocks have been found at the junction with the granite.

Petrologically the coarser sandstones are interesting in that they contain pebbles of chert and of volcanic rocks, the latter belonging to the Pahang Volcanic Series. Coarse sandstones with these pebbles can be seen in the sections at the entrance to Keppel Harbour. The chert contains the remains of Bryozoa and other organisms.

A small pebble of schorl-rock was also found in the sandstone, but pebbles of granite resembling the granite of the island have not been found.

Fossils have been found in fine-grained beds of these sedimentary rocks. In 1906 I found fossils in a silty rock in an excavation on Mt. Guthrie. These were described by Mr. R. B. Newton (Geol. Mag. 1906. pp. 487-496) as estuarine. Mr. Newton wrote that the beds containing them "may be of Middle Jurassic "age and about the horizon of the Inferior Oolite of England or the "so-called Bajocian of Continental Geologists. They possibly re-"present an extension or outlier of the Upper Gondwana rocks of "India, as well as forming part of the fossiliferous areas of Eastern "Asia, including Korea, Japan, and Siberia, which have yielded a "similar vegetation." (loc. cit. p. 488).

The fossils found were presented to the British Museum of Natural History. They comprise marine mollusca and plant-remains (including a seed) collected by myself and Dr. Hanitsch. I also found obscure vegetable-remains in shale at Tanjong Malang, close by Mt. Guthrie, and a piece of fossil wood at Mt. Wallich.

Fossils have also been found by me in a cutting near the top of the road that leads to the Mt. Faber Ridge by way of Morse and Pender Roads, and a collection made by Mohamed Dahim, one of the Geological Department staff. These fossils have been fully described by Mr. R. B. Newton in the Annals and Magazine of Natural History, Vol. xii, 1923, pp. 300-321 (with one plate). His conclusions are as follows:—

"From a study of this small fauna discovered in the Singapore "Sandstones it is possible to trace specific connections with that "characterizing certain Trias deposits of Europe.

"Similar resemblances have been recorded by Dr. Mansuy in "his palaeontological researches on the Triassic rocks of Indo-"China. In those deposits that author was able to trace faunistic "affinities with European types occurring in the German Muschel-"kalk, as well as in the Alpine and Mediterranean Trias. Relation-

"ships were also observed among the same horizoned faunas of the Himalayas, where the Ladinian, Carnian, and Norian stages of the Trias formation have been recognized, whilst Dr. Trechmann has alluded to similar affinities in connection with fossils from the New Zealand Trias. It is difficult, however, to attempt a close correlation of the Singapore deposits with the eastern developments of the Triassic system, on account of the paucity of fossils, although the tabulation of the fauna as inserted on pp. 318 and 319, exhibiting more or less the distribution of the species that have been recognized, may be of service in this direction. The facies of the fauna is distinctly that belonging to the St. Cassian Beds of the Austrian Tyrol; on the other hand, two or three forms suggest an origin among the older deposits of the Muschelkalk, whereas others exhibit a later or Rhaetic character. Lithologically the same throughout, it is certain that the Singapore deposits must be of one geological horizon, and forming, as it seems possible, a continuation of the Myophorian Sandstone of Pahang developed some 200 miles north of Singapore, which has been regarded as of Rhaetic age, although, like the Singapore material, containing both St. Cassian and Muschelkalk species.

"This Rhaetic age of the Pahang fauna was determined by myself in 1900. A few years later, when studying Rhaetic fossils from the Napeng Beds of Burma, Miss Healey, referring to the occurrence in those beds of *Modiolopsis gonoides,* and recognizing the same shell in the Pahang Sandstones under my determination of *Pleurophorus elongatus?,* then stated that "this (identification) confirms Mr. R. B. Newton's opinion that the Myophorian Sandstone in which these casts occur is Rhaetic or Upper Triassic."

"For the present, therefore, we may consider the Singapore Beds as of Upper Trias or Rhaetic age until better-preserved and more varied material is available to facilitate a greater accuracy of statement as to their true position in the Triassic Series."

Quartz-porphyry and volcanic rocks.

Apart from the granite, igneous rocks have been found in a few localities. On Pulau Pergam, an islet in the western portion of the Straits of Johore, quartz-porphyry with a chloritic base occurs. Puartz-porphyry was also found as a boulder in excavations near the junction of Orchard and Grange Roads.

Near the junction of Orchard and Grange Roads again boulders of andesitic ash and of dolerite have been found.

On the hospital site near the Ballestier Road, boulders of dolerite and trachyte were found.

An interesting rock was found many years ago heaped beside the road bordering the Ballestier Reservoir. This was a volcanic ash with chert full of fairly well-preserved radiolaria. The latter were described in an unpublished communication by Dr. Wheelton Hinde, but they did not indicate any definite age and the locality from which the rock came was never discovered. It was believed to have been an island near Singapore.

Andesites, dacites, and ashes of the same composition.

These occur on Pulau Nanas, a small island between Johore and Pulau Ubin, and on the Johore Mainland near Pulau Nanas. The rocks are quarried on a large scale on Pulau Nanas and on the mainland and are familiar as road-metal in Singapore and Johore. They are compact, fresh rocks: on Pulau Nanas the quarries afford excellent sections of them.

Hitherto these rocks have been assumed to be older than the granite of Pulau Ubin (*i.e.* the Mesozoic granite) and fragments of granite found in the ash on Pulau Nanas, a granite differing from that of Pulau Ubin, have been assumed to come from an older granite mass. Recent work in Johore, however, and the islands off the East coast of Johore and Pahang show that there may be extensive outcrops of Tertiary lavas and ashes like those of North Sumatra and it must be admitted that these rocks may be younger than the Pulau Ubin granite.

Granite.

Nearly the whole of the central position of Singapore Island is formed of granite, and there is reason to believe that under the alluvium of the eastern part of the island there is granite also.

Everywhere the granite is much affected by weathering, but the quarries of Pulau Ubin, Changi, Seletar, Bukit Panjang and Bukit Timah, afford abundant specimens of the fresh rock; and these quarries show that there is a marked difference in the granite as one travels from west to east. Near the western margin the granite has a high silica percentage; the amount of dark mica is not large. Quartz and felspar are abundant. A tourmaline-rock has been found at B. Timah, where also granite-porphyry occurs. In a granite quarry at Bukit Panjang I found, in 1906, a pocket of cassiterite, molybdenite, chlorite, and calcite. Later, tin-ore (cassiterite) was found in quantity by Mr. Loveridge at Bukit Mandi. Later again, about 1921, further specimens of molybdenite were found in one of the Bukit Timah quarries. These were exhibited at the Malaya-Borneo Exhibition.

The granite on the western edge of the outcrop is of an "acid" type in which one may expect to find tin-ore and its satellites. On travelling over the outcrop to the east, however, a less acid type is found, characterized mainly by the occurrence of hornblende as well as dark mica.

In 1922 a good example of this rock was being quarried at Seletar, near the turning into Mandi Road. It was a handsome dark granitic rock with abundant dark mica, hornblende, (sometimes with a core of pyroxene), felspar, and a fair amount of quartz.

At Changi again, the granite is of a hornblende variety, but the exposures are not very good. On the island of Pulau Ubin, on the other hand, the exposures are all that could be desired. The rock is, in the main, hornblende-granite, but cutting it and included in it are other rocks that have been described in my earlier paper.

No evidence has been found pointing to the acid granite of Bukit Panjang and Bukit Timah not being of the same age as the hornblende-granite of Seletar, Changi and Pulau Ubin.

Kaolin occurs in connection with the granite of Singapore, and if it can be found in sufficient quantity free from ironstain, should be important commercially.

The granite of Singapore has proved to be of great value locally in the construction of the mole in the Roads and of the Johore Causeway. For the latter granite has been quarried at Pulau Ubin and Bukit Timah.

The igneous rocks associated with the granite.

When these rocks, referred to above, were first described in 1910, the exposures were better than now. They showed that veins of quartz-norite, masses of quartz-biotite-gabbro, and veins or masses of a fine grained rock, enstatite-spessartite, occurred in the granite of Pulau Ubin. In 1922 I saw new sections which suggested that the "masses" of gabbro and enstatite-spessartite were formed by veins of these rocks being cut by later intrusions of granitic-rock (aplite). If this view is correct, though I cannot say the evidence is very good, then the sequence of events in the granite magma of Pulau Ubin was:—

1. Consolidation of hornblende-granite.
2. Intrusion of quartz-norite, quartz-biotite-gabbro, and enstatite—spessartite into the hornblende-granite.
3. Intrusion of fresh granite material, cutting some of the veins in section 2.

High level alluvium.

In the east of the island the Tampines Road, the Changi and East Coast roads run through country formed of low hills between 50 and 100 feet above sea-level. These hills are formed of alluvium, which is well exposed at Tanah Merah Kechil. It consists of sand and clay. The sand has a high percentage of felspar, derived from granite, but also contains shale pebbles. Staurolite occurs among the heavy minerals.

The extent, thickness, and coarse grain of these alluvial beds precludes their having been formed by the existing rivers in this part of Singapore Island, which are nothing more than tidal creeks, but these characteristics do strongly suggest that the beds belong to a former period when Singapore was united to the mainland, and that they may be old terraces of alluvium formed by the Johore River, now separated from them by the Straits of Johore. In Sumatra such terraces have been found as much as 140 m. above sea level. Their exact age is unknown, but they are assumed to be quarternary.

These high level alluvial beds in Singapore should be thoroughly searched for remains of prehistoric man and implements.

The most noticeable recent deposits are muddy alluvial flats, covered with mangrove, that border the creeks. They are of no particular interest geologically. In the vicinity of Kranji, however, and elsewhere there is reason to believe that beds of alluvium rich in kaolin derived from the granite occur.

In Singapore Town evidence has been found of very recent accumulation, due to human agency. Thus slag was found when the foundations of Messrs. John Little & Co's present premises were excavated. In 1921 Mr. W. H. Mawson sent rocks from excavations on Collyer Quay, among which was one closely resembling flint and also a specimen of stibnite.

General.

Singapore is a small island, but the discovery of fossils in the shale and sandstone, and the extent of the exposures in the granite quarries make it interesting geologically. It forms part of one of the unsymmetrical ribs of the Peninsula, that begins in Kelantan, as the Tahan Range of quartzite mountains, and is continued through Dutch Islands to Singkep.

The granite is part of the great mass of granite which is exposed on the surface in many of the Peninsula ranges and which yields the rich tin-deposits. The shale and sandstone are part of a widespread shallow-water formation that was deposited on the coast of the ancient continent Gondwanaland. In the Dutch Indies granite, norite and gabbro occur of the same age as the Singapore rocks, and the same shale and sandstone are found. In Sumatra fossils like those of Mt. Faber (Rhaetic) have been found in similar rocks.

I feel sure that a thorough search in the islands near Blakang Mati (St. John's Island etc.) would yield further collections of fossils. An opportunity was missed during the excavation of the new dock at Tanjong Pagar, where, I was told, fossil vegetable remains were seen, but not collected. The high level alluvium should also be searched.

Some old Private Letters from the Cape, Batavia and Malacca (1778–1788).

By P. C. Hoynck van Papendrecht.

When I passed for the first time through the Straits of Malacca in October 1880, on my way to Singapore where I was to spend nearly twenty years of my life, I little thought that a namesake of mine, Reynier Bernardus Hoynck van Papendrecht, had lived and died in that neighbourhood nearly a hundred years earlier.

My ignorance of this fact finds an easy explanation in the remoteness of our relationship. I have to go back for six generations (to my great-grandfather's great-grandfather) to find a common ancestor in Johan Hoynck van Papendrecht (1654-1718) who is also great-grandfather to the Hoynck in question.

It was in 1890 that my attention was drawn to him by an article in this journal by Mr. (subsequently Sir) W. E. Maxwell on Raja Haji's war with the Dutch. The author had drawn his information from various sources, Malay as well as European. Amongst the latter was a translation of Netscher's "Twee Belegeringen" (¹) in which my kinsman's name appears several times.

This Reynier Bernardus, who was born in 1753, first entered the military career, serving as ensign in Count van Bylandt's dragoons, of which regiment his own father was the Colonel.

In January 1776 he married Louise Jeanne Deutz, daughter of a lieutenant-general, and two years afterwards he left for the East to enter the service of the Oost-Indische Compagnie in the capacity of under-merchant.

During his outward voyage and his stay in the East he corresponded with his youngest uncle Cornelis Paulus Hoynck van Papendrecht, lawyer at the Hague, his father having died in 1774.

Reynier Bernardus' letters, or part of them, passed directly or indirectly into the hands of his nephew Cornelis Paulus Hoynck van Papendrecht, lawyer at Amsterdam, whom I remember quite well.

Having no children, the latter left the family records of his branch to my father, with whom he had been on friendly terms, and these papers passed, at my father's death, to my eldest brother. The letters in question are amongst them and I have now only copies before me, as it would be risky to expose the originals to a journey by post.

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(1) This translation from the Dutch had been made by Sir William Maxwell's sister, Mrs. Isemonger, whom I asked at the time how she came to know my language. Having been answered that she did not know Dutch at all, and that she only had her knowledge of German to resort to, I complimented her on the remarkable, "tour de force" which her translation represented under those circumstances.

It is a very old promise I now fulfil in offering to the Society a translation of these letters, (²) which are partly written in French and partly in Dutch.

The practice of sending duplicates of homeward letters is evident from the beginning. There are pages full which are identical to a word with the preceding message. I shall leave these out as far as they do not add fresh particulars.

The letters are dated from the Cape of Good Hope, Batavia and Malacca. The first-named port falls outside the scope of an Asiatic description, but in a certain sense it has an Asiatic, and even Malayan interest, since all travellers who shaped their course for Malaya in those days had to pass by the Cape. Consequently the impressions obtained there form part of their experience. I shall therefore give all the letters as completely as possible. (³)

I may leave out one or two criticisms which must have had their origin in the special atmosphere in which my kinsman was placed whilst seeking a position. The whole correspondence being of a private character, I feel in honour bound, even after these 140 years, to observe the discretion which on one occasion he specially recommends.

The letters are not always pleasant reading. There is too glaring a contrast between the Company in the difficulties of her decline and the luxury displayed by her servants. And whilst it is gratifying to note that Reynier Bernardus, when he finally reaches a responsible position, can state that his revenues are not obtained to the detriment of the Company, the very fact that he mentions this leads to the suspicion that such was not then the general rule.

I shall now let him tell his own tale.

No. I.

Written in French.

(I leave out whatever is repeated in the subsequent letter from Batavia).

Cabo de Bonne Esperance 31st March, 1778.

Dear Sir and much esteemed uncle,

I apologize for (⁴) now sending you a kind of journal. My time is too much taken up with gaieties in which I cannot refuse to assist and by the occupations of my employ, since all the books I had to keep of wages, victuals, etc., have to be examined and registered

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(2) Mr. C. Otto Blagden reminded me of this promise when he revised my contribution to Journal No. 67. Even then he promise was an old one; I am afraid it was made in 1896 or 1897! But there are extenuating circumstances which I need not record here.

(3) In the paper I referred to, Maxwell expreseed the wish to see the records of the war of 1784 supplemented by local traditions collected in Malacca. Private letters, written shortly after the war, ought to be even stronger evidence than traditions that have passed through four or five generations.

(4) The ward "not" has evidently been accidentally omitted.

here. Besides the journal will be a lengthy one and I shall have the satisfaction of sending it to you from Batavia.

We are staying here with Captain de Lille. It is impossible to describe the kindness and civility which these people show us. Mr. de Lille's mother is a Lady (5) Snouckaert by birth, and consequently a full cousin of my wife. We had also been invited by the Fiscal Boers, who is even a greater prince, but our cousin had managed to reach us first, having come on board to fetch us as soon as we had anchored.

The Governor does not treat me as an under-merchant, but exactly as becomes our birth and with visible distinction. The day after my arrival he did me the honour of returning my call, assuring me that he would do everything in his power to be useful to me. He gives parties expressly for us which only the best society attends. In fact, dear uncle, he does for us everything that is imaginable.

I am also much obliged to Mr. Boers who exerts himself to give us pleasure. He has promised me the strongest recommendat ons for Batavia, where he has a brother in a splendid position.

No. II.

Written in French.

Batavia, 20th October, 1778.

Dear Sir and much esteemed uncle,

I hope that the receipt of this letter may give you pleasure equal to that which we feel in sending it. Being uncertain whether my letter from the Cape has reached you, I shall take the liberty to repeat what I may have said therein on the subject of my voyage.

We hove anchor at Texel on the 29th December of last year; a strong breeze, although only half favourable, carried us the same day into the Channel, and we then rapidly gained the entrance of the Spanish Sea (6) where we kept rough weather throughout. Moreover this is a very dangerous passage owing to the number of banks existing which sea-faring people call "On the Grounds." (7)

We crossed the line on the 6th of February, almost without knowing it; the heat was quite tolerable and not half so bad as it is here where we are at a distance of 6 degrees. All they had told us in Europe is pure chaff; but on the 15th of the same month we were horizontally under the sun (8) and then it was hot and one felt it; as it often happens that there is not a breath of wind and one is worried to death by the flies. We had the luck to get into the trade-wind and on the 22nd of March 1778 we dropped anchor in the Cape Roads under the Leeuwen and Tafelberg, (9) without having had a single death or case of sickness.

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(5) "Freule" = the title in Holland of an unmarried lady of noble birth.

(6) Bay of Biscay.

(7) "Op de Gronden", in Dutch in the French text.

(8) He evidently means: vertically.

(9) The Lion's Head and Table mountain.

Our cousin, Captain de Lille, came on board at once with his sloop to take us on shore. Nothing can be imagined more gracious and courteous than the reception and hospitality these people showed us.

I went to pay my respects to the Governor and I sent in my papers to My Lords and Masters; then all received me most admirably and during our stay treated us with distinguished courtesy. The Fiscal Boers even went so far as to send a note on board offering his house, but as you have seen, I had already given my word to Mr. de Lille.

The Cape was very gay, then, on account of the number of foreign vessels in the roads; there was dancing every night; but our amusement was only half-hearted because my little girl, who had been ill right through the voyage, got worse and passed away by the will of Heaven on the 4th of April 1778, just the day we had to embark again.

I will now continue my narrative. At the Cape, people live much in the same way as in Europe; they dress the same; all the European vegetables are available, but they have neither taste nor fragrance; meat, with the exception of game, is very bad. The place is small and by no means pretty; the houses have no roofs (10) (which is comical) as these would be blown away by the South East winds.

No, the Cape is not the spot in India which I would select as a residence; I assure you that the Cape is certainly not the paradise in India which people in Europe imagine it to be. Its sole advantage is the moderate climate which it enjoys all the year round.

I do not know, dear uncle, what more I could tell you about the Cape. The only thing that remains to be said is that in the one hundred best-stocked cellars in Europe there are not two which contain the real Cape wine. I have been expressly to the spot whence it comes; only a small property, at a distance of 3 lieues (11) from the Cape and named Constantia, which one of the former Governors has built, giving it the name of his daughter. There is none but that one place which gives this good wine; whatever method has been tried to transplant this vine has failed, even on adjoining land, where other vines grow. Around the Cape all the peasants cultivate vinyards; they make Stone-wine, Madeira and several other kinds, but these are not very good; therefore in all the good houses they drink nothing but European wine.

We left the Cape on the 6th of April 1778 and made sail for Batavia so as to finish the third part of the way which had still to be accomplished. But what weather! And cold! And what peril we were in at every moment! All the time we thought we were going to founder; our main-mast was already broken: if we had lost it altogether we should have perished for certain. The Good God preserved us. We only lost two sailors washed overboard by the waves, but we had some other deaths in addition.

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(10) **This must be taken as: no slanting roofs.**
(11) **The French " lieue " varied from 2½ to 3½ miles.**

We safely dropped anchor in the roads of Batavia on the 8th of June 1778. Batavia is the best built city in the world. The wide streets and the quays are planted with canary-trees (12) which are all beautifully in line. Besides the town is very strong; the citadel is a master-piece. Nothing is more charming and pleasant than the surrounding country. The avenues, plantations and fields, by whatever gate one leaves the town are the finest to be seen anywhere. The Hague on its best side is nothing compared to Batavia —but Batavia is unhealthy in a way not to be imagined. Twice already I have been ill to the point of dying. One is rarely without fever here. My wife has escaped so far, but then the climate is not so inimicable to women. It is incredible how many people die. Several of those who arrived with us died within a month; the under-merchant Helsevier is one of them. To give you a better idea still, I may mention that of the 32 soldiers we had on board for the garrison, only four were alive six weeks after. Outside the town conditions are less unhealthy, therefore the well-to-do people, who all live in the country, are not so liable to die.

There are hardly any European soldiers here; the service is done by a body of negroes such as Papangers, Balinese, Buggis, Macassarese, Malays, Amboinese, Mandharese, Boutons, Sumbawese, Parnakans (13) and Javanese. These troops are a hundred times better than the European soldiers; they arrive as the Company sends them: they are given a bad coat and bad musket and—lo, they are soldiers!

The officers are no better; it is almost degrading to be one of them, and they are completely excluded from good society. The other day a halbardier of the general's escort was drunk and fell off his horse. He was summoned before the general who reprimanded him with the words: "You villain, if this happens again, I shall forthwith make you a lieutenant." My drunkard promised that such a thing would not occur again. I quite believe him; my halbardier (14) gets 100 écus (15) a month and the lieutenant only gets 10 more! My halbardier is more respected than the officers. Really the latter are nothing but crimps. How I thank God that I have not accepted the brevet of captain of these noble troops.

Luxury simply cries aloud here. The houses are furnished regardless of cost (16); the women must be an enormous expense (17) to their husbands; one woman with her fineries on wears more jewelry than twenty duchesses at Court. (18) And she will not wear her jewels twice in the same setting; the jeweller has to change them for each gala.

No one can be worse educated than the women here, they have such bad ways of thinking; from whatever point you consider them you find no good in them.

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(12) A native of the Moluccas.
(13) Peranakans?
(14) "Mon Marot d'helbardier." I am at a loss what "marot" can possibly mean here. A marot is: a fool's bauble, a hobby.
(15) "écu"—an old French coin worth 3 livres (francs).
(16) "on ne peut plus."
(17) "Coûtent furieusement."
(18) "qui ont le tabouret."

They detest a European woman, who has consequently much to suffer, especially if the husband has to play "s'il vous plait" (19).

There are many peculiar ways in which one has to deal with the various races,—for instance the Chinese, who are swarming in Batavia. As to the ridiculous etiquette I have to observe, I am not yet sufficiently instructed in its particulars; perhaps I can tell you something more in my next.

Allow me now to revert to my private affairs; I have left these for the end, since they do not form the most pleasant part of my letter.

On my arrival here I found that General Riemsdijk had died; you know, dear uncle, that I had many letters of introduction to him and very few to the present general. And I do not even think that the latter has received the message from the Duke (20), considering that he is not on good terms with the late general's children, who for that reason may not have passed it on to him. As to all the other letters I had, they might as well have been delivered by the postman; only the postman would have got paid for them and I did not even get a "thank you." I must except the Councillor Fockens, to whom I had nothing but a single little letter; for from the very first he has put himself out to please me. Mr. Radermacher who ought to have been my man, my protector, goes on protesting that he is so; but I do not get on and when there are vacancies he says they do not suit me or that there is some relation of an "Honourable" (*) in the way. Still I do not ask for a lucrative engagement, but just a living. Look how well he is placed to get this for me—the general who is his father-in-law, does absolutely nothing without consulting him; in fact he is called in Malay the "General Kechil" or the little general.

As for returning home, never. I never think of it—any more than I think of becoming an emperor.

Let me enumerate the few good situations existing in which one makes an immense fortune in a few years. The two berths of Administrator at Onrust, an island containing the richest warehouses and where the homeward-bound vessels take in their cargo, afford every opportunity for smuggling and trafficking. Not a year passes in which the occupants of these posts do not make their 100 sacks, and every sack brings a profit of 1000 écus. I am not in the least exaggerating. Just think that these gentlemen pay 10 sacks a year (the recognised bribe) to the water-fiscal, and there are so many others who fare well by their friends.

Then there are governorships, directorates etc.; it is always some "Honourable" who graciously accepts such posts.

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(19) A so-called French expression used in Holland, but probably not French at all. It means: to be meek, submissive, to kow-tow. A Frenchman would probably have said "faire chapeau bas."

(20) This must be the Duke of Brunswick-Wolfenbuttel, woh had practically ruled as regent during the latter part of the Stadtholder's minority. He had been the Prince's chief tutor and afterwards maintained a strong influence over him.

(*) "Edele Heer" The members of Council were thus styled.

Such are the positions in which a fortune is to be made. But there are other good places, in which however it takes somewhat too long before one accumulates a fortune; for instance the posts of Sabandhaar (21), of the two Administrators of the provision-warehouse, and of those of the sugar-warehouse. Only one has to be a relation of some "Honourable" or else—failure is certain (22).

If my family persists in not sending me letters from the Prince then all the others are not worth the postage.

Unless I get starved to death beforehand I can frankly assure you that I shall still be unemployed for four years. There are twenty under-merchants, and even merchants, out of employ; besides many "Honourables" have daughters to marry and not only is the son-in-law at once placed in a good berth, but all his clan as well.

Do not believe I am so unwise as to grumble loudly here; on the contrary; I am everybody's "very humble servant." I give my sentiments when they are asked, but only as far as I know that their expression will please. In short I bend as I am asked to do, to such an extent that people are wondering how I have so suddenly learned to swallow the pill, and I can say without boasting that I am popular with everybody. If you have other correspondents here they will confirm this.

No. III.

Written in Dutch.

Batavia, 2nd September, 1779.

Well and high-born Madam and much honoured grandmother,

It has pleased the Almighty God to take my much cherished wife Louise Johanna Deutz, at the age of 26, after a fortnight's illness (by the putrid fever here so frequent) from this sorrowful valley into His Divine Glory. I have esteemed it my duty to acquaint you with this sorrowful loss, not doubting that you will take part in my legitimate affliction.

I hope and wish that the Divine Hand will long ward off from you similar blows.

His widowhood was not to last long, as appears from the following printed notice, of which there exists also a written copy, addressed again to his grandmother.

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(21) The functions of a "sabandhaar" are recorded in a later letter.

(22) "Nul op het request." He gives this characteristic expression in Dutch.

No. IV.

Batavia, 29th July, 1780.

Written in Dutch.

Having the intention, in hopes of God's blessing, and with the absolute consent of parents and nearest of kin, to conclude a lawful marriage, the first proclamation of which will take place on Sunday the 30th of this month, we feel in duty bound to apprise you thereof, not doubting that you will take some part in our legitimate happiness.

Recommending us in your honoured friendship

R. B. H. v. P.

M. Smit, named Schippers, Widow Carpenter van Westerbeek.

No. V.

Written in French.

Batavia, 20th October, 1780.

Dear Sir and much honoured uncle,

I had every reason to think that my unlucky fate would change, when I had the advantage of informing you on the 29th July 1780, of my marriage to Maria Paulina Smit, named Schippers, the widow of Mr. Guilleaume Carpenter van Westerbeek, chief-merchant and commander of Bantam, and daughter of Mr. Thomas Schippers, Common Councillor of the Indies and President of the Court of Justice at the Castle of Batavia.

I see myself obliged to spend all my belongings for the honour of the Company, from which I have not yet received a single penny. I have patrons in the High Regency, but we are in East-India (23) where nothing is so rare as keeping one's word.

The new General Arnold Alting, to whom I have never been indifferent, promised my late father-in-law that he would give me a place at the first opportunity. So I must wait and see.

In the meantime, my dearest uncle, I beseech you to interfere on my behalf with those who have credit in this colony.

The letters of the Directors (24) have much influence nowadays, even more than those of His Grace the Duke, of which I have learned by sad experience.

The present general (this entre nous) is not much of an Orangist. (25).

I am writing by the same opportunity to my relative Willem van Heemskerk and to Jan Agges Scholten for letters of recommendation to him. I do the same to Messrs. Pieter Cornelis Hasselaar, Gualterus Petrus Boudaan and Frederik Alewijn through the medium of my cousins J. Deutz and Deutz d'Assendelft, whom I ask to intercede on my behalf.

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(23) "Het is in Oost-Indie" (in Dutch in the French text.)

(24) "Bewindhebbers" (in Dutch in the French text.)

(25) "is niet seer Prinsgezind" (in Dutch in the French text.) There were then two factions in Holland: "Orangists" and "Patriots."

I begin to get somewhat accustomed to the climate and for the last four months I have had no mortal (sic) disease, as I used to have every three months.

Batavia is a regular cemetary of Europeans.

In the other stations of Java and of the so-called Great-and Little East, (26) people are well and healthy: here the natives are no more able than we to resist the climate. Of our slaves who come from Macassar, Timor, Ternate, the West coast of Sumatra etc., two out of three die before they get acclimatised.

I enclose a list of ships making sail for Europe this year, (27) a few pamphlets by Mr. van Hogendorp, etc.

Then follows a gap of six years which may be attributed to the war between the United Provinces and Great Britain and the consequent seizure of ships by men-of-war or privateers.

The war was not officially declared till the 20th December 1780 but as early as the 31st December 1779 a convoy of Dutch ships was seized and taken into Spithead by British war-ships.

Many letters must have got lost even before the declaration of war, to wit that which Reynier Bernardus wrote to his grandmother (see No. IV) fully eighteen months after the lady had died, which occurrence his people had certainly notified to him. But some letters did get through even in the midst of the war for there is a short note to a cousin acknowledging the receipt of her letter of 16th March 1782 and stating that he had written to her since on five occasions. The fact that he thus went on writing home tends to prove that correspondence was not stopped altogether.

In the meantime he had been transferred to Malacca and there he continues the letters to his uncle.

No. VI.

Written in Dutch.

Malacca, 6th September, 1786.

At the death of my second wife, daughter of the Indian Councillor Thomas Schippers, who had also died, I had made up my mind to return to Europe, but the war with England preventing this and my health constantly suffering from the Batavia climate, His Honour proposed me the appointment of either Fiscal or Sabandhaar at Malacca.

I chose the latter, bought a two-masted vessel, loaded it full (28) and was ready to start with her for Malacca, when I got seriously ill and had to postpone my voyage.

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(26) "Groote en Kleine Oost" (in Dutch in the French text.)

(27) I shall give this list at the end of the paper.

(28) "vol en soet." Soet (or zoet in modern Dutch) means: sweet. The meaning may be: with every prospect of a good profit.

In the meantime the sea got so unsafe that I was afraid of falling into the hands of privateers. In two months' time I recovered and left for Malacca in a Company's ship. I had sold my little vessel, cargo and all, at a profit of 4000 Rixdollars, to Baron van Dankelman, (29) who, on his voyage to Bengal, had the misfortune to run it on the rocks near Pegu, where it foundered with all hands.

The bearer can tell you in what state he has left me, both as regards my blessedness in means and my health. Malacca is as salubrious as the best place in Europe.

I am Sabandhaar here; that means Collector of Domain Dues; and Licence-Master, Councillor of Police, Presiding Member of the Board of Justice, first member of the College of Orphan-Masters, (30) President of the College for Matrimonial and Minor Judicial Cases, first Regent of the Hospital etc., etc.

A Councillor of Police has an office outside the town and enjoys more privileges and honours than a member of the Indian Council at Batavia. In one word, I lead the life of a prince; I live in the finest house of the town, which is also the best and most modernly furnished; I have a nice country-place which I occupy when shipping is slack; I further have a splendid property called Tanjong Kling, on which four villages are situated; if I possessed the sixteenth part of its area in the Meyery, (31) I would be a rich man. To the house, or properly speaking: Das Herrenhaus, (32) I have given the name of "Overkerk."

I cannot tell you the exact number of my slaves, but it is over sixty.

I have my coach and gig, three sets of horses and two saddle-horses; altogether I lead a very happy life and were I not so young, I would never think of repatriating.

Since 1781 we have only had two months of peace; on the war with England followed one with the natives. Malacca was even blockaded for 5 months. This has caused me great damage, for instance it cost me the lost of two vessels. Fortunately I was able to let two others, the cutter d'Onderneemer and the hooker de Handelaar for 1000 guilders a month each to the Company. My piece of land has been thoroughly ravaged by the enemy.

Things are getting better now, trade is going along and I can resume my sabandhaaring.

The bearer of this letter is Dr. Hoffman, who hails from the Hague; he arrived at Batavia as head-surgeon, but has not been able to remain there on account of the state of his health. He has therefore obtained permission to return to Europe in a private English ship under the Danish flag.

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(29) The Stadtholder's wife, a Prussian Princess by birth, had brought with her to Holland, as court-lady, her former governess, Miss von Danckelmann, and was ruled by this political blue-stocking in the same way as her husband was ruled by Brunswick. The unlucky baron may have been one of her relatives.

(30) I translate literally. "Wees" means orphan; but the "Wees-en Boedelkamer" in Netherlands India corresponds to the Office of Official Assignee, coupled with that of winding up successions. This may be the sense in which "Weemeesteren" has to be taken.

(31) A district in the Netherlands.

(32) He fails to explain why the house ought to be called by this German name.

Never, my dear uncle, have I seen a country with greater freedom in the practice of religion; it is known to every one that I am a Roman Catholic, but nobody has given me a sour look for that and it has never stood in my way. Here at Malacca there is a large community of Roman Catholic Portuguese who have their priest and who openly hold their divine service in their own church to which I do much good. And I attend church, therefore, uncle dear, you may be at rest on that account.

Let this letter serve as a kind of circular to my family and my good friends. Just at this period shipping is brisk and the Company closing its books. Consequently I am too busy now to write to everybody.

As regards the closing of the books, the Company's affairs are in a bad and miserable way; it gets terrible blows; its trade is at a standstill and it is badly in want of funds.

In Batavia paper-money is used, here at Malacca we have assisted the Company with money at a modest little interest of two per cent a month. From Bengal and the Coast the ships now and then come back in ballast to Batavia. In Ceylon I am afraid things will not go well much longer; all those princes are only watching for a good chance.

The correspondence between the Prince of Cadia (33) and the colonel of the Luxemburg legion has fortunately been discovered; the colonel and four superior officers have at once been sent to Europe in irons along with the documents.

No. VII.

Written in Dutch.

Malacca, 8th October, 1786.

After the death of my father-in-law I was summoned by the Governor-General who offered me (rather than wait for a situation (34) to be appointed either Fiscal or Sabandhaar at Malacca. I thanked His Honour for his favour, but I observed that it would take me some time to make a choice, because I had no information yet to show me which of those two charges was the more profitable and suitable to me. The General gave me eight days to consider my answer.

I chose the function of Collector and licence-Master, commonly called Sabandhaar here. As Collector I receive all the Company's domain-dues of which I render account indefinitely (35); (this much depends on the Governor.)

As Licence-Master I am the chief of the in-and-out-going custom-duties; I grant permits, letters of redemption, etc.; to this is attached the function of having all foreigners under my supervision; I have to introduce them and provide them with all they want (36); in short I am their consul, their attorney.

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(33) For Candia = Kandy.
(34) " at Batavia " is to be understood here.
(35) " Onbepaaldelijk " the meaning must be: at indefinite periods.

This as regards the profitable side; now for the honorary duties:

(He then recapitulates all his charges, see No. VI).

The Governor here is a much greater being than the Governor General of Batavia. He is styled "Edele Heer." And the Councillors of Police are in much higher consideration than a Member of the Indian Council at Batavia; they roll about in gilt coaches, wear velvet coats, etc.; things which at Batavia are only permitted to Members of Council.

I have a large office-staff; the most arduous part of my task is to receive money and to sign my name.

My employment is highly agreeable, profitable and independant because my revenues are not made to the detriment of the Company. Having seen a bit of the world and speaking all the languages in use here I am esteemed by, and popular with, all nationalities.

It was in May 1781 that the Council at Batavia nominated me to this office. It was in my own richly loaden barque that I had intended to make the voyage to Malacca, together with my wife who had been born here (whilst Schippers was Governor of Malacca); but we both fell seriously ill and my wife died. Being left her sole heir and without children I had resolved to go home; but see: then came the news of the war with England and I chose to betake myself to my destination rather than to die with money at Batavia. So I sold my barque to Dankelman, formerly Fiscal in Bengal, who went down with her, and I left for Malacca in the month of October. (37).

We got wind of the approach of the English fleet on its way to China, but fortunately evaded it by taking refuge behind the Carimon (38) Islands. For three days we did not dare to move from there and I ran the risk of arriving destitute in Europe; for the English would certainly have sent us thither and I had most of my belongings on board.

But we had the good luck to arrive safely at Malacca and since then I have not had a single day's illness. People here live to a great age; they are in robust health and have the look of people at home. I think I am now quite as stout as Colonel Marnette and I increase so much in weight that I believe I shall be as heavy as my late father.

In the beginning of my stay here I gained much by trade and shipping, but on top of the war with the English came a war with the natives from which I had to suffer. I lost a vessel which was ransacked, but I was able let my two other ships to the Company for 1000 Rixdollars a month each (39), and this lasted for two years and a half, which afforded an alleviation.

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(36) This seems rather a large order. I think he only refers to the *papers* which the immigrants had to be "provided with."

(37) Considering the time needed for buying and loading the barque and his two months' illness, the news of the declaration of war, which arrived after these events, cannot have reached Batavia before the month of August. It must therefore have taken eight months' time (December 1780—August 1781).

(38) "Cardamongose."

The trouble with the natives got so far that we (the Council of Malacca) resolved to send an expedition of ships and troops to Rhio in order to seize and destroy that place which belonged to the aggressor Radja Hadji (40). Our fleet only consisting of two ships and four lesser craft, and being chiefly manned by Javanese and Chinese (a faint-hearted people) was not a match for Radja Hadji's powerful army. The Government of Batavia sent some reinforcements of ships and troops and ordered that two delegates of our Council should have the command of that expedition. It was decided that these delegates were to be the Vice-Governor (41) Lemker and the Sabandhaar van Papendrecht.

We left with our little squadron and joined the fleet which was blokading Rhio. We took over the command and ordered everything for a landing.

It was arranged that five of the smallest vessels were to strike through the hostile fleet and then run up the river, whilst the troops were to land at another side.

Mr. Lemker and I separated, I led the van with the goerab (42) "De Snelheid" and Mr. Lemker followed with a small vessel "Malax Welvaart." We had got past two batteries and defeated the enemy's fleet when the tide began to fall and all our five vessels ran aground just under the fire of the three heaviest batteries.

Shortly after this the "Malax Welvaart" was blown up with all hands through an unknown cause; the vessel burned fiercely (43) and continued discharging her guns. At last she got adrift and threatened to set all of us on fire. I ordered all kinds of things to be thrown overboard and the powder to be kept in safety, trying in this way to get the other ships afloat again and thus to avoid the burning ship.

Finally the hindmost vessel succeeded in this and the others were successively made fast to her and we fortunately got free of the blazing ship. I was so near to her that my fore-top-sail caught fire twice from the sparks. Everything was ready on board to set fire to our own ship and to take to the boats, but through God's blessing I got free of the burning ship.

During these events the troops had landed but they were beaten off with great loss.

The wreck remained burning for three days in the channel through which we had to pass. In the meantime the springtide had subsided and the blowing up of the "Malax Welvaart" had deprived us of the flower of our crews and of our strongest vessel.

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(39) I repeat this because in No. VI he mentions the price of 1000 guilders. A rixdollar (rijksdaalder) is worth two and a half guilders.

(40) He calls him Radja Hadja throughout.

(41) "Secunde."

(42) *Ghurab*, the Arab name for a galley, a class of native armed vessel called *Grab* by the English in the 18th Century. (I copy this note from Maxwell's article in Journal No. 22, p. 190).

(43) "Fiament" certainly not a Dutch word. It sounds like a corruption of the French word fièrement.

The Council of war took the unanimous resolution to raise the siege, we being in want of everything and far too inferior in strength.

My goerab De Snelheid was riddled and had had her pumps working without interruption during the fight. I had 62 rounds of different calibre left after the retreat, having been already engaged with the hostile fleet two days previously.

I went back to the big flagship and took the fleet to Malacca. My goerab De Snelheid was found to be beyond repair and had to be condemned.

By this failure our Governor incurred the displeasure of the High Government at Batavia. He would have liked to lay the blame on me, but through my report (you may be able to see it at the East-India House (44) and some more proofs I succeeded in coming out of this affair with honour.

The Governor Pieter Gerardus de Bruijn (these are the first letters of his name (45) is a Ceylonese who only knows secretarial work, by which he has made his fortune at Batavia; he knows how to draw up resolutions with *"It is approved and resolved,"* but he has not the least idea of cabinet affairs. By his bad correspondence, mistaken reports, etc., he led into error and exposed our fleet. There was no love lost between us; really I had no reason to be a friend of his. Besides I had shown my unwillingness to marry his eldest daughter, a possibility he had flattered himself with. Fortunately he could not do me any harm; I have amply as much influence at Batavia as he has.

Shortly after this Radja Hadji came to beleaguer Malacca in his turn, assisted by all the Malay princes of the Straits, chiefly and openly by his brother-in-law Radja Brima king of Selangor (46).

Then we were in great embarassment. Pieter de Bruijn inexperienced and timorous, shut himself up in the fort; the new Vice-Governor, a valorous and capable gentleman, took the command in the outlying works on one side and I took charge of the other side. The enemy hemmed us in so closely, except on the seaside, that it was a great boon that Admiral Van Braam came with the Government squadron to relieve us, in which he would not have succeeded but for the death of Radja Hadji, in whom all the natives saw a kramat idoep (*i.e.* a living saint). No sooner had he fallen than they broke and fled and we were free of our enemies.

Radja Hadji had ever so many resources, even more than the notorius Haider Naik on the Coast; he could afford to lose a thousand men as easily as we could bear the loss of ten. And he did not need to pay his men nor to provide for their subsistence; in that way one can wage war for a long time.

Now we are at peace with everybody; may God grant that this continues, for I gained no advantage by the war (47) (48).

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(44) "Het Oost-Indische Huijs," the Compagnie's office at Amsterdam,

(45) This is evidently meant as a sneer.

(46) Salaghor.

(47) " Tk hebbe er geen Zijde bij gesponnen," lit: I have spun no silk by it.

(48) These events took place in 1784. That he only records them in 1786 shows that correspondence must have slackened as the war went on.

A ship surgeon, called Hofmann can tell you in what state he found and left me; he sailed for Denmark last September in the private Danish vessel "*De Resolutie*" Capt. Swiem (49).

P.S. Please give part of this letter to my family to read, but use some discretion in all that concerns the Indian Government.

The next and last letter contains a literal copy of No. VII. It only gives the following new passages.

No. VIII.

Written in Dutch.

Malacca, 8th October, 1786.

After the war one wants a rest; to gain this aim I have taken to me a pretty young widow without children, but with a sweet little penny. (She is the third). Thanks to God I lead a most happy life and I regret the time I remained unmarried.

I have no children and do not wish to have any.

There is less objection to girls, but nothing is so unfortunate to European fathers as to have sons. No matter what good instruction you may give them by tutors they get such a bad way of thinking. No, if Betty (my wife) makes me a present of one, I shall send him to Europe in his third year; that is fixed.

In one word, I am very well here and I have no desire to leave.

I have given my attorneys at Batavia order to subjoin to this letter some articles that may give you pleasure.

Well and happy as he was, his days were then running to their end. He was not destined to live to the great age of those he described in his praise of the Malacca climate, a praise so widely different from the voices heard in the present day, decrying as a "pestilential hole" another port in the Straits. He was taken away at the age of thirty-four.

His death must have taken place in the latter part of 1787, since the news reached Holland, via Batavia, in the beginning of May 1788, as is shown by the final document which I now translate.

No. IX.

Written in Dutch.

Amsterdam, 4th May, 1788.

Well and nobly born Sir and cousin,

Yesterday I received a message from my brother Jacob Van Heemskerck at Batavia, informing me that he has received a letter from Mrs. Elisabeth Diderich, housewife of Mr. Reynier Bernard Hoynck van Papendrecht, in which she communicates the decease of her husband aforesaid, during his life Under-Merchant and besides Collector and Licence-Master at Malacca; with the kind request to acquaint the family with this sad occurrence.

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(49) I repeat this because in a former letter this vessel is mentioned as English.

(sd.) Van Heemskerck.

To Mr. C. P. Hoynck van Papendrecht,
Advocate at the Court of Holland,
At the Hague.

I wonder whether his grave is still to be found at Malacca. If any of the members of the Society can ascertain this, and will then have the kindness to communicate to me what is left of the epitaph all such particulars will be received most thankfully.

P. C. Hoynck van Papendrecht.

Villa de Tanglin,
Avenue Trespoey.
Pau (Basses-Pyrénées) 15th December, 1923.

List of the Return-ships for Autumn 1780 and Spring 1781.

DIRECT FROM BATAVIA.

First sending.

For Amsterdam:

150 feet. De Cehemoth, commodore Cornelis Cornelisz.
— —. Concordia, Skipper Evert Wesseling.

For Zealand:

— —. Oud Haarlem, Skipper Arie Kikkert.
140 —. Beekvliet, Skipper Ketel Jacobs.

For Delft and Rotterdam:

140 —. Vreeburgh, Skipper Adriaan van Kaatersveld.

For Hoorn and Enkhuizen.

— —. First sailer de Vrouwe Anthonetta Coenradina, Skipper Cornelis Philippus Hoek.

Second Sending.

For Zealand:

via Ceylon:

150 feet. 't Loo, Skipper Jan van der Sloot.
— —. Amsterdam, Skipper Laurens de Sille.

via Coromandel:

150 feet. De Triton, Skipper Godlieb Mulder.
140 —. De Dankbaarheid, Skipper Hendrik Steedzel.
— —. Diana, Skipper Pierre Fredrik Riebe.
— —. De Bovenkerker polder, Skipper Jerriaan Verburg.
— —. Popkenburg, Skipper Joachim Bank.

via China:

150 feet. Houcoop, Skipper Axel Land.
— —. De Paarl, Skipper Dirk Cornelis Plokker.
— —. Middelburg, Skipper Justinus van Gennep.
140 —. Hoogcarspel, Skipper Gerrit Harremeijer.

The above list has been written by one of my Slaves. (50).

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(50) These words are in Reynier's handwriting.

A list of Ants of Singapore and some neighbouring places.

H. OVERBECK.

From November 1912 up to the end of June 1914 the writer collected ants in Singapore for Mr. H. Viehmeyer, the well-known specialist in Dresden. Attempts were made to solve some problems of the local ant-fauna, and to breed ants by keeping the different ♀ ♀ caught at the lamp in a kind of incubator made of plaster-of-Paris which sometimes proved successful. The whole work and further plans were stopped by the outbreak of the war. The results obtained so far have been dealt with at length by Mr. Viehmeyer in the "Archiv für Naturgeschichte," 81 Jahrgang, 1915, Abt. A, Heft 8, pp. 118-168, where is given a full description of all new species. The following abstract is made from Mr. Viehmeyer's paper.

The collector has to thank Mr. I. H. Burkill, Director, Botanical Gardens, Straits Settlements, for his kind assistance in determining plants and helping him with literature and for his active interest taken in the collector's work.

Collecting-grounds.

1. The garden of the collector's house, situated at the 7th mile, Bukit Timah Road, area about 15 acres, planted with fruit-trees, coconut-palms and rubber-trees. Main collecting-ground; when no other place is mentioned this garden is always to be understood.
2. Bukit Timah Hill, Singapore.
3. Jurong Road, Singapore.
4. Chua Chu Kang Road, Singapore.
5. Mandai Road, Singapore.
6. Ulu Beri, Singapore.
7. Ayer Terjun, Singapore.
8. Pulau Bulan (Riouw-Archipelago) south of Singapore.
9. St. Barbe (Pulau Pĕjantan), a small island in the Southern China Sea, halfway between Singapore and Pontianak.
10. Gunong Angsi, 2700 ft., west of Seremban, Negri Sembilan, F. M. S.
11. Perhentian Tinggi, a rubber-plantation at the foot of the Gunong Angsi.
12. Cucub Id., S. W. Johore.

To the five last-mentioned places occasional trips only were made, and no systematic collecting could be done. Pulau Bulan and Perhentian Tinggi did not yield anything not found in Singapore, whilst on Cucub the collector found one and in St. Barbe three kinds of ants not found in Singapore. A few hours collecting on the slopes and in the neighbourhood of the bungalow on the top of the Gunong Angsi produced 45 different kinds of ants, 25 of which had not been found in Singapore. A closer survey should give very interesting results.

Methods of collecting.

The ants were collected into small glass tubes and, as far as possible, the different colonies were kept separate. Following Mr. Viehmeyer's instructions, different methods of collecting have been tried. The most successful one was that followed by Forel in the jungles of Columbia, *i.e.*, searching for colonies of ants in hollow places in plants and trees, in rotten tree-stumps and branches, in decaying wood, underneath loose bark, in branches hollow or honeycombed by beetle-larvae and white ants, etc., etc. Very good results were yielded by a hedge of small bamboo in the collector's compound, cut down by the gardener at regular intervals, where the internodes cut open and withered harboured by far the greatest number of colonies and kinds. The sieve could but rarely be used. Baiting for ants with honey met with some difficulty in regularly collecting the ants attracted by the bait. The sweeping of shrubs and trees with a butterfly-net gave sometimes good results, but was rather painful for the collector owing to the startling of mosquitoes and wasps (*penyengat*). The captures at the lamp during the evening gave good results throughout the year and yielded many kinds, the colonies of which could not be found. Quaint, but sometimes very productive, places of collecting were the cups of the Nepenthes, or Pitcher-plants, where ants nearly always form the greater part of the remains of insects contained. White-ant hills, which harbour many kinds of ants, were rare.

Altogether more than 300 tubes were sent home which yielded more than 190 different kinds of ants of which 1 genus, 1 subgenus, 16 species, 13 subspecies and 15 varieties were new. The type-specimens were in Mr. Viehmeyer's collection.

List of Species.*

Subfam. DORYLINAE Leach.

Dorylus (Dichthadia) levigatus F. Sm. var. **breviceps** Em. ☿
In a heap of rubbish.

Aenictus leviceps F. Sm. var. **smythiesii** For. ☿
Gunong Angsi, near the bungalow.

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* Forms described as new by Viehmeyer in the paper quoted above are distinguished by being *printed in italics.*

Aenictus shuckardi For. ♂
At the lamp.

Subfam. PONERINAE Lep.

Phyracaces singaporensis Viehm.
Colony in the hollow branch of a mangosteen-tree.

Platythyrea coxalis Em. ☿ ♀
In a dead branch of a living tree, in holes and passages apparently made by white-ants or beetle-larvae. Single specimens caught now and then.

Platythyrea pusilla Em. var. ***egena*** Viehm.
In the garden.

Platythyrea sagei For. ☿
In a half-decayed trunk of a tree lying on the ground.

Stictoponera binghami For.
Colonies in decaying wood; another in the stump of a shrub, just above the surface of the soil; another in the decaying trunk of a tree lying on the ground, half in the wood, half in the ground; another under an old tin in the garden.

Stictoponera menadensis Mayr. ☿
Top of Gunong Angsi, in the jungle.

Odontoponera transversa F. Sm. ☿
Baited with honey in the garden, single specimens from Bukit Timah Hill.

Diacamma tritschleri For. ☿
Single specimens from Water-reservoir, Thompson Road; from Bukit Timah Hill, and one specimen in a Nepenthes-cup.

Diacamma rugosum Le Guill. subsp. **vagans** F. Sm. var. **birmana** Em. ☿
Top of Gunong Angsi.

Pachycondyla (Bothroponera) insularis Em. ☿
Single specimens found when digging up a white-ant hill between the roots of a tree; colony not found.

Pachycondyla (Bothroponera) tridentata F. Sm. ☿
Two specimens in a Nepenthes-cup.

Pachycondyla (Ectomomyrmex) leeuwenhoeki For. ☿
In a rotten, half-decayed branch lying on the ground, Bukit Timah Hill.

Pachycondyla (Ectomomyrmex) overbecki Viehm.
Colony between the roots of a tree in loose earth.

Euponera (Trachymesopus) sharpi For. ♀ ☿
As neighbour of, or living together with white-ants; also single specimens.

Euponera (Trachymesopus) crassicornis Em. ♀

Euponera (Trachymesopus) darwini For. var. **indica** For. ♀
Both species, of which only the ♀ ♀ are known, came to the lamp throughout the year, the former rarely, the latter more frequently. No ♂ caught which could be determined as such with absolute certainty. Attempts at breeding in the incubator failed, and so did a two years' search for a colony.

Pseudoponera amblyops Em. ♀
Single specimens in the garden.

Ponera confinis Rog. var. n. ***singaporensis*** Viehm.
In the wet pulp of a large fungus on a tree attacked by white ants, and in the rotten wood of a decaying branch.

Ponera confinis Rog. subsp. n. ***epinotalis*** Viehm.
Under a flower-pot in the garden.

Leptogenys (Lobopelta) diminuta F. Sm. subsp. **hodgsoni** For. ☿
From the slopes of the Gunong Angsi.

Leptogenys (Lobopelta) peüqueti E. André. ☿
In a rotten tree lying on the ground; also single specimens in the garden.

Anochetus punctiventris Mayr. ☿
Single specimens in the garden.

Anochetus agilis Em.
Single specimens in the garden.

Odontomachus rixosus F. Sm. ☿
In the garden between the roots of a tree; found when digging up a white-ant hill; baited at night with honey; single specimens from Bukit Timah Hill.

Odontomachus rixosus F. Sm. var. **obscurior** For. ♀ ☿
From the top of Gunong Angsi.

Odontomachus haematoda Linn. ☿
In the garden and from Pulau Bulan.

Subfam. MYRMICINAE Lep.

Sima rufonigra Jerd. ☿ ♀
Jurong Road, garden, and in a Nepenthes-cup from Ayer Terjun.

Sima pilosa F. Sm. ☿ ♀
Colonies in dead twigs of Mangosteen-trees and in withered bamboos.

Sima (Tetraponera) allaborans Walk. ☿ ♀ ♂
Colonies in dead twigs of Mangosteen-trees.

Sima (Tetraponera) allaborans Walk. var. **sumatrensis** Em. ☿ ♀
Colony in the dead branch of a shrub; also single specimens.

Sima (Tetraponera) allaborans Walk. subsp. **crassiuscula** Em. ☿
Two specimens in Nepenthes-cups.

Sima (Tetraponera) fulva Viehm.
Colony in the hollow twig of a mangosteen-tree. Possibly only a subspecies of *allaborans.*

Sima (Tetraponera) attenuata F. Sm. ☿
Single specimens in the garden.

Sima (Tetraponera) difficilis Em. subsp. **longiceps** For.
Colony in the hollow branch of a Chiku-tree.

Sima (Tetraponera) siggi For. (var.?)
In the hollowed-out pith-channel of a bough of a mangosteen-tree. A single wingless ♀ in a similar spot.

Slightly varies from Forel's description; if different, Mr. Viehmeyer suggests the name var. *setifera.*

Pheidole nodgii For. ☿ ♃ ♀
One colony under a flower-pot; another underneath a felled tree on the ground, colony on the tree not in the ground, but covered up by the ants with earth.

Pheidole inscrobiculatus Viehm.
From the slopes of the Gunong Angsi.

Pheidole rinae Em. ☿ ♃
Single specimens in the garden; also found on Jambu-fruits lying on the ground.

Pheidole plagiaria F. Sm. ☿ ♃
Gunong Angsi.

Pheidole javana Mayr. ☿ ♃ ♀ ♂
Colonies in rotten wood; underneath a decaying tree lying on the ground, partly in the tree, partly in the ground; in a dead stump of a tree filled up with humus, and similar places.

Pheidole exasperata Mayr. var. **polita** Viehm. ☿ ♃
Colony in a rotten branch lying on the ground, Bukit Timah Hill. In two Nepenthes-cups the prothoraces of a new form (☿) related to *exasperata* were found, marked by a singularly narrow, long head.

Pheidole (Ischnomyrmex) longipes F. Sm. var. **conicicollis** Em. ☿ ♃ ♀
In a rotten, half-decayed branch of a tree, lying on the ground, Bukit Timah Hill.

Pheidole (Ischnomyrmex) longipes F. Sm. var. **continentis** For. ☿ ♃
In a rotten branch of a tree, lying on the ground, Bukit Timah Hill. ☿ and ♃ very aggressive.

Rhopalomastix rothneyi For. ☿ ♀ ♂
In dead ends of twigs of Mangosteen-trees, and in the bark of the Durian-tree.

Myrmicaria arachnoides F. Sm. ♂ ♀
At the lamp; a single wingless ♀ in a small pasteboard cell underneath a leaf.

Myrmicaria dromedarius F. Sm. ☿ ♀
Gunong Angsi; a number of ♀ ♀, having already shed their wings, on a path in the jungle, digging holes into the ground.

Cardiocondyla wroughtoni For. subsp. **quadraticeps** For. ☿
Caught with the net; colonies in withered bamboo, especially between the fibres of the tubes; in a dry branch lying on the ground.

Cardiocondyla nuda Mayr. ☿
Single specimens from St. Barbe Id. and in the garden.

Cremastogaster rogenhoferi Mayr. ☿
Caught with the net: in Nepenthes-cups; on a tree, visiting *Coccidae.*

Cremastogaster artifex Mayr. ☿ ♂
From Jurong Road, and in Nepenthes-cups. Fairly large pasteboard nests round branches of trees and shrubs to serve as colonies, and smaller ones on leaves to shelter *Coccidae.*

Cremastogaster modiglianii Em. var. **sarawakana** For. ☿
Single specimens from St. Barbe Id.

Cremastogaster overbecki Viehm.
Colony in a dead branch of a tree honeycombed by white-ants and beetle-larvae.

Cremastogaster longipilosa For. ☿ ♀
Single specimens in the garden; caught with the net; baited with honey; in Nepenthes-cups from Ayer Terjun.

Cremastogaster spengeli For. subsp. ***taipingensis*** For. var. ***picata*** Viehm.

From the top of Gunong Angsi.

Cremastogaster millardi For. ☿
Underneath the bark of dead branches; in dead branches in passages made by white-ants and beetle-larvae; twice a first generation in a hollow branch; ♀ ♀ frequently at the lamp. Attempts of breeding three times successful, first generation up to ten ☿ ☿, of the same size as the first generations found in hollow branches. Single specimens frequent, also caught with the net and found in Nepenthes-cups.

Cremastogaster ferrarii Em. ☿
Colonies in withered bamboo; single specimens from Chua Chu Kang Road and Cucub Id., also in Nepenthes-cups.

Cremastogaster subnuda Mayr. subsp. **politula** For. var. **ruginota** For. ☿

In the stump of a branch on a living tree; single specimens; also caught with the net.

Cremastogaster (Physocrema) deformis F. Sm. ☿
Single specimens in the garden, from Chua Chu Kang Road, Ayer Terjun, Bukit Timah Hill and from the slopes of Gunong Angsi.

Cremastogaster (Physocrema) inflatus F. Sm. ☿
Nest (made from earth or pasteboard) on a branch high up on a tree at Chua Chu Kang Road. Seems to breed *Coccidae* in the fissures of the bark and underneath loose bark.

Cremastogaster (Decacrema) decamera For. ♀
At the lamp.

Cremastogaster (Decacrema) borneensis E. André, subsp. ***hosei*** For. var. ***tubuli*** Viehm.

In the hollow shafts at the end of the branches of a large tree-like *Macaranga* at Mandai-Road. Very aggressive.

Cremastogaster (Decacrema) borneensis E. André var.? or subsp.?

Mr. Viehmeyer is not quite sure about this form; should it be a new one, he suggests the name of **macarangae.** In the hollow internodes of the shafts of *Macaranga hypoleuca* Muell. Arg. (I. H. Burkill det.) from Bukit Timah Hill and from the slopes of Gunong Angsi. (See H. N. Ridley, Symbiosis of Ants and Plants. Annals of Botany XXIV, 1910, pp. 457-483, T. xxxv and xxxvi).

Mr. Burkill found in the hollow shafts of a *Macaranga* inhabited by ants some *Coccidae*, the size of which showed that probably they had been brought in by the ants when quite young.

In the same kind of *Macaranga* from Bukit Timah and Gunong Angsi the same kind of ant has been found, whilst another kind of *Macaranga* was inhabited by another kind of ant.

Dilobocondyla cataulacoidea Stitz var. ***fulva*** Viehm.
Colony in the hollowed-out pith-channel of a twig of a Mangosteen-tree; single specimens in Nepenthe-cups.

Prystomyrmex pungens Mayr. ☿
Caught with the net in the garden.

Calyptomyrmex beccarii Em. var. ***glabratus*** Viehm.
Three single specimens in the garden.

Meranoplus bicolor Guer. ☿ ♂ (♀)
Colony in the ground, narrow passages in loamy soil which go deep below the surface. Single specimens on the extra-floral nectaries of the spider-orchid, and on Jambu-fruits lying on the ground. Moves very slowly.

Meranoplus mucronatus F. Sm. ☿
From Gunong Angsi, colony in a hollow tree.

Vollenhovia brevicornis Em. subsp. ***minuta*** Viehm.
Three single specimens from Gunong Angsi.

Vollenhovia overbecki Viehm.
Colony in a rotten trunk of a tree, Jurong Road; also in the garden.

Vollenhovia rufiventris For. ☿
Colony in the soft wood of a half-decayed tree lying on the ground.

Monomorium butteli For. subsp. ***demochrum*** Viehm.
A number of ☿ ☿ under a flower-pot on a table under the portico.

Monomorium minutum Mayr. subsp. **liliuokalanii** For. var. **javana** For. ☿
In the garden, and from Gunong Angsi; colony in a dead branch and in the stump of a branch.

Monomorium floricola Jerd. ☿ ♀ ♂
In the garden and from Gunong Angsi; in passages made by white-ants and underneath the bark of trees; on the extra-floral nectaries of the spider-orchid; colonies under loose bark, in hollow twigs of the Mangosteen-tree and in withered bamboo.

Monomorium latinoda Mayr. ☿
Single specimens in the garden.

Monomorium destructor Jerd. subsp. **mayri** For. ☿
Single specimens from St. Barbe Id.

Monomorium pharaonis L. ☿ ♀
In withered bamboo; mostly single specimens in house and garden. One colony in the office between old letters; also from on board of a mail-steamer.

Monomorium (Martia) atomus For. var. **procax** For. ☿ ♀
From Bukit Timah Hill and in the garden, colonies in dead, hollowed-out branches; also single specimens and caught with the net.

Monomorium (Corynomyrmex) n. subg. ***hospitum*** Viehm.
♃ ♀ ♀ and 2 ♂ ♂ together with a number of ☿ ☿ of *Monomorium floricola* in narrow passages in the stump of a branch.

Solenopsis overbecki Viehm.
Colony in narrow passages in a piece of branch lying on the ground. Polygynous colony with 4 ♀ ♀ which had lost their wings.

Lophomyrmex bedoti Em. ☿
In the rotten trunk of a tree lying on the ground.

Pheidologeton diversus Jerd. ♀ ♂
In the garden; colony in wood; a procession of ☿ ☿ in the Botanical Garden; the ♂ at the lamp.

Pheidologeton affinis Jerd. ♂
In the garden, single specimen found in the act of being carried away by *Plagiolepis longipes* Jerd.

Oligomyrmex overbecki Viehm.
Colony in an old trunk of a tree lying on the ground.

Tetramorium guineense Fab. ☿ ♀ ♂
On trees; in old passages of white-ants; on Jambu-fruits lying on the ground; ♀ ♀ frequently at the lamp. Colonies in wood and bamboo: one solitary ♀, having lost her wings, in a withered bamboo; also from St. Barbe Id.

Tetramorium scabrum Mayr. ☿
Single specimens from the garden.

Tetramorium obtusidens Viehm.
Two ♀ ♀ together with *Cataulacus praetextus* and *Technomyrmex albipes* in a rotten branch, Jurong Road.

Tetramorium pulchellum Em. ☿
One specimen caught with the net in the garden.

Rhopthromyrmex rothneyi For. var. **intermedia** For. ☿

Rhopthromyrmex rothneyi For. subsp. **sumatrensis** For. ☿
Both from Gunong Angsi.

Xiphomyrmex smithi Mayr. var. **kanarense** For. ☿
Single specimens in the garden; caught with the net; frequently on Jambu-fruits lying on the ground. Colony in the ground.

Triglyphothrix striatidens Em. ☿ ♀
Chiefly single specimens in the garden; once as visitors of coccidae on a flower. Colony under a flower-stand, in a hollow part of the bottom.

Triglyphotrix lanuginosa Mayr.
Single specimens in the garden and from Gunong Angsi.

Cataulacus horridus F. Sm. ☿
One specimen from Gunong Angsi.

Cataulacus praetextus F. Sm., var. **sumatrensis** For. ☿
Together with *Tetramorium obtusidens* and *Technomyrmex albipes* in a withered branch of a tree at Jurong Road; also in Nepenthes-cups.

Cataulacus granulatus Latr. subsp. **hispidus** F. Sm. ☿ ♀ ♂
Single specimens in the garden; caught with the net; at the water-reservoir, Thompson-Road. Colonies in withered bamboo.

Strumigenys godeffroyi Mayr. ☿ ♀
Colony in the fibrous tissue about the base of the leaves of a coconut-tree.

Proatta butteli For. ☿
In a white-ant hill in the garden.

Subfam. DOLICHODERINAE For.

Dolichoderus (Hypoclinea) affinis Em. ☿
Under the bark of a branch of a dead tree.

Dolichoderus (Hypoclinea) affinis Em. var. **nigricans** Em. ☿
Frequently polygynous colonies with many ♀ ♀ having lost their wings. In one colony an empty pupa of *Microdon*. Colonies in withered bamboo and under loose bark; single specimens from Gunong Angsi; ♀ ♀ frequently at the lamp.

Dolichoderus (Hypoclinea) tuberifer Em. ☿
From Gunong Angsi.

Dolichoderus (Hypoclinea) sulcaticeps Mayr. ☿
Pasteboard nests underneath leaves, partly for habitation, partly for keeping *Coccidae*.

Bothriomyrmex wroughtoni For. subsp. **dalyi** For. ☿
In the foot of a hollow tree, passages like those of white-ants.

Iridomyrmex anceps Rog. ☿ ♀ ♂
Colony twice in the ground; single specimens, and caught with the net; ♀ ♀ at the lamp, once in great numbers at night on a steamer in the Straits of Malacca, at a fair distance from the shore. Also from Gunong Angsi and Pulau Bulang.

Iridomyrmex levigastus Em. ☿ ♀ ♂
Colonies in bamboo and hollow branches, in fissures of the bark or under loose bark, covered up with earth; in the tubers of a *Dischidia* in the Botanical Gardens and on a tree at Ulu Beri under moss and orchids. Single specimens from Bukit Timah Hill, Chua Chu Kang Road, Ayer Terjun, Pulau Bulang and in Nepenthes-cups. ♀ ♀ and ♂ ♂ at the lamp; ☿ ☿ very aggressive.

Tapinoma andamanense For. var. **capsincola** For. ☿ ♀
Colonies in the dry branch of a Jambu-tree, in withered bamboo, and in the hollow twig of a Mangosteen-tree. One polygynous colony with 4 ♀ ♀, which had lost their wings.

Tapinoma melanocephalum Fabr. ☿ ♀
Colony under loose bark, closed up with earth, and in a branch lying on the ground.

Tapinoma indicum For. ☿ ♀ ♂
Colony in decaying wood in the ground, and in the stump of a tree, not far above the surface of the ground, between the stem and loose bark, closed up with earth. Single specimens; also caught with the net; on Jambu-fruits lying on the ground.

Technomyrmex albipes F. Sm. ☿ ♀
Colonies in rotten wood, hollow branches and withered bamboo. Caught with the net; single specimens also from Bukit Timah Hill and Gunong Angsi.

Technomyrmex albipes F. Sm. var. ***cordiformis*** Viehm.
Colony in a hollow broken piece of a branch of a tree at Ayer Terjun.

Technomyrmex modiglianii Em. subsp. **elatior** For. ☿
Single specimens from Gunong Angsi, one specimen in the garden.

Technomyrmex schimmeri Viehm.
In withered bamboo.

Semonius glaucus Viehm.
One single specimen in the garden. Of this genus previously only one species was known from the Kalahari.

Subfam. CAMPONOTIDAE For.

Plagiolepis longipes Jerd. ☿ ♀ ♂
Very frequent in house and garden; one colony in a hollow tree; ♀ ♀ and ♂ ♂ at the lamp; also from St. Barbe.

Plagiolepis exigua For. ☿ ♀ ♂
Colonies in withered shoots of bamboo close to the ground, the hollow internodes filled up with loamy soil, wherein the passages of the colony; also between the longitudinal fibres of withered bamboo; in a dry branch lying on the ground and in a hollow twig of a Mangosteen-tree.

Plagiolepis bicolor For. ☿ ♀
Caught with the net; colonies under bark or in hollow twigs of a mangosteen-tree.

Plagiolepis rothneyi For. subsp. ***splendida*** Viehm.
Single specimens in the garden, also caught with the net and very frequent in Nepenthes-cups from Ayer Terjun.

Acropyga acutiventris Rog. var. **rubescens** For. ☿ ♀ ♂
Colony in a half-decayed branch lying on the ground, honey-combed with passages partly covered with earth (white-ants?); part of the colony in the ground underneath the branch. Seems to be shy of the light.

Oecophylla smaragdina Fabr. ☿ ♂
Several nests in the garden; in Nepenthes-cups; from St. Barbe Id.

Prenolepis jerdoni Em. ☿
Caught with the net in the garden; in Nepenthes-cups from Ayer Terjun.

Prenolepis (Nylanderia) longicornis Latr. ☿
From Gunong Angsi.

Prenolepis (Nylanderia) butteli For. subsp. ***malaccana*** Viehm.
One specimen only from Gunong Angsi. Perhaps a distinct species.

Prenolepis (Nylanderia) yerburyi For. ☿
From St. Barbe Id.

Prenolepis (Nylanderia) clandestina Mayr. ☿ ♀ ♂
Colony underneath the bark of a branch lying on the ground.

Prenolepis (Nylanderia) minutula For. subsp. **atomus** For. ☿
Colony in the fibrous texture on a coconut-palm under the base of an old frond.

Pseudolasius circularis Viehm.
♀ caught at the lamp.

Pseudolasius ludovici For. ♀
Caught at the lamp. Attempt of breeding failed when the larvae had turned into pupae.

Pseudolasius mayri Em. var. **elisae** For. ♀ ♂
Caught at the lamp, Sungei Burong Estate, Cucub Id.

Pseudolasius mayri Em. var. ***duplicata*** Viehm.
♀ caught at the lamp.

Pseudolasius martini For. ♂
Caught at the lamp. Possibly a var. or subspec. of the form described by Forel; in that case Mr. Viehmeyer suggests the name **eximius.**

Pseudolasius badius Viehm.
♀ caught at the lamp.

Genus OVERBECKIA Viehm.

Overbeckia subclavata Viehm.
Colonies in withered bamboo; one colony in the hollow branch of a Mangosteen-tree.

Camponotus (Myrmoturba) festinus F. Sm. var. **eximius** Em. ☿
Caught at the lamp.

Camponotus (Myrmoturba) arrogans F. Sm. ☿ ♃ ♀
In withered bamboo; in a Mangosteen-tree; single specimens. Also from Gunong Angsi. ♀ ♀ at the lamp.

Camponotus (Myrmoturba) subnudus Em. ♀ (minor).
At the lamp.

Camponotus (Myrmoturba) subnudus Em. var. ***obfuscata*** Viehm.
Colony in withered bamboo; one solitary ♀ in a rotten branch lying on the ground.

Camponotus (Myrmoturba) tinctus F. Sm.
♀ caught at the lamp; colony in a half-decayed branch lying on the ground.

Camponotus (Myrmoturba) tinctus F. Sm. var. ***carinifer*** Viehm.
Colony in the rotten trunk of a tree, Jurong Road.

Camponotus (Myrmoturba) maculatus Fabr. subsp. **fatuus** For. var. **frater** Em. ☿ ♃ ♀ ♂

In a hollow tree.

Camponotus (Myrmoturba) maculatus Fabr. subsp. **maxwellensis** For. ♀

In a hollow branch of a tree.

Camponotus (Myrmoturba) maculatus Fabr. subsp. **mitis** F. Sm. ♃

Single specimens in the garden.

Camponotus (Myrmoturba) maculatus Fabr. subsp. **mitis** F. Sm. var. **fuscithorax** For. ☿ ♃ ♀ ♂

Colonies in the end of a branch of a dead tree, in bamboo and under an old packing-case on the ground; in the garden and from the foot of Gunong Angsi. A ♀ caught at the lamp raised a first generation of ☿ ☿ in the incubator.

Camponotus (Dinomyrmex) gigas Latr. ♀ ♃

From Bukit Timah Hill, Water-reservoir Thompson Road, and from Ayer Terjun, single specimens only. One ♃ in a Nepenthes-cup.

Camponotus (Dinomyrmex) inezae For. var. **simalurana** For. ☿ ♃

In the trunk of a tree honeycombed by white-ants.

Camponotus (Myrmothrix) nicobarensis Mayr. var. **exiguoguttatus** For. ☿

Single specimens from Gunong Angsi.

Camponotus (Myrmotarsus) nigricans Rog. subsp. ***nitidiceps*** Viehm.

♀ caught at the lamp.

Camponotus (Myrmomalis) hospes Em. subsp. ***adultus*** Viehm.

Single specimens from the jungle, Gunong Angsi.

Camponotus (Myrmamblys) moeschi For. var. ***lygaea*** Viehm.

One solitary specimen from Ayer Terjun, and one in a Nepenthes-cup.

Camponotus (Myrmamblys) bedoti Em.

Colonies in withered bamboo.

Camponotus (Myrmamblys) bedoti Em. subsp. ***sericellus*** Viehm.

Between bark and stem on a Chiku-tree; two single specimens together with *Dolichoderus affinis,* also under loose bark.

Camponotus (Myrmamblys) bellus For. ♃ ♀

Colonies generally in withered bamboo; twice in the hollow branch of a tree. Outside of the colonies only caught once with the net.

Camponotus (Myrmamblys) bellus For. subsp. ***adustus*** Viehm.

One specimen, caught with the net.

Camponotus (Myrmamblys) ephippiatus Viehm.
One specimen, caught with the net.

Camponotus (Colobopsis) gretae For. ♀
From Gunong Angsi; caught at the lamp in Singapore.

Camponotus (Colobopsis) vitreus F. Sm. ☿ ♃ ♀ ♂
Colonies in withered bamboo, in decayed wood and in hollow twigs of Mangosteen-trees. ♀ ♀ frequently at the lamp. One ♀ caught at the lamp raised 6 ☿ ☿ in the incubator.

Camponotus (Colobopsis) vitreus F. Sm. var. **angustata** Mayr. ☿ ♃ ♀ ♂
Colonies in the garden in rotten wood (deserted passages of white-ants?) and in bamboo; at Ayer Terjun in the stem of a fern, hollowed out to about 5 feet above the surface of the ground, with small round entrance-holes at some distance apart. Also single specimens; ♀ ♀ caught at the lamp.

Camponotus (Colobopsis) vitreus F. Sm. var. **vittatula** For. ♀
Caught at the lamp.

Camponotus (Colobopsis) pilosus F. Sm. ☿ ♃ ♀
From Bukit Timah Hill and in Nepenthes-cups. Single specimens in the garden and from St. Barbe Id.

Camponotus (Colobopsis) pilosus F. Sm. subsp. ***gracilentus*** Viehm.
♀ caught at the lamp.

Camponotus (Colobopsis) badius F. Sm. ☿
From Bukit Timah Hill, Mandai Road, Gunong Angsi and in Nepenthes-cups from Ayer Terjun. One colony in the wood of a living tree (passages perhaps made by white-ants?).

Camponotus (Colobopsis) rothneyi For. ☿ ♃ ♀ ♂
In a hollow branch, Bukit Timah Hill.

Camponotus (Myrmosphincta) camelinus F. Sm. ☿
From the top of Gunong Angsi.

Camponotus (Myrmosphincta) dolichoderoides For. subsp. ***overbecki*** Viehm.
Pasteboard nests under the leaves of a tree at Mandai Road.

Polyrhachis (Campomyrma) fruhstorferi Em. subsp. ***varicolor*** Viehm.
Garden.

Polyrhachis (Myrmatopa) schang For. var. ***leviuscula*** Viehm.
Three single specimens caught with the net in the garden. Colony of another very similar form on a palm-leaf in the garden.

Polyrhachis (Myrmothrinax) thrinax Rog. var. ***nigripes*** Viehm.
Pasteboard nest in the twisted leaf of a shrub.

Polyrhachis (Myrmothrinax) thrinax Rog. subsp. ***inconstans*** Viehm.
Pasteboard nest in the fold of a palm-leaf; also single specimens in the garden.

Polyrhachis (Myrmothrinax) thrinax Rog. subsp. **saigonensis** For.
One ♀ caught at the lamp.

Polyrhachis (Myrmothrinax) frauenfeldi Mayr. ♀
One ♀ caught at the lamp.

Polyrhachis (Myrmothrinax) textor F. Sm. ☿
In a Nepenthes-cup from Ayer Terjun.

Polyrhachis (Myrma) mayri Rog. var. ***obesior*** Viehm.
Single specimens from Gunong Angsi and Singapore.

Polyrhachis (Myrma) proxima Rog. ☿ ♀
Caught with the net in the garden; single specimens in the garden and from Bukit Timah Hill.

Polyrhachis (Myrma) pruinosa Mayr. ☿
Single specimens from Jurong Road and Mandai Road; frequently in Nepenthes-cups from Ayer Terjun.

Polyrhachis (Myrma) striata Mayr. subsp. **assamensis** For. ☿
Three specimens from Gunong Angsi.

Polyrhachis (Myrma) striata Mayr. subsp. **tritschleri** For. ☿
One specimen from Gunong Angsi.

Polyrhachis (Myrma) villipes F. Sm. ♀
One specimen caught at the lamp.

Polyrhachis (Myrma) orsyllus F. Sm. ☿ ♀
Gunong Angsi.

Polyrhachis (Myrma) orsyllus F. Sm. subsp. **ritsemai** Mayr. ☿ ♀
Colony in withered bamboo.

Polyrhachis (Cyrtomyrma) levissima F. Sm. ☿ ♀
Single specimens from the garden and Gunong Angsi; colonies in withered bamboo (garden) and under loose bark closed up with earth (Gunong Angsi).

Polyrhachis (s. str.) **bellicosa** F. Sm. ☿
Single specimens from the garden and from Gunong Angsi.

Polyrhachis (Chariomyrma) arcuata F. Sm. ☿
Caught with the net in the garden.

Polyrhachis (Myrmhopla) armata Le Guill. ☿
Single specimens from Bukit Timah Hill and Gunong Angsi.

Polyrhachis (Myrmhopla) tibialis F. Sm. var. **parsis** Em. ♀
Caught with the net in the garden; in a hollow branch, of which only the bark remained, lying on the ground; in a Nepenthes-cup from Ayer Terjun.

Polyrhachis (Myrmhopla) hecuba For. ☿
Colony in withered bamboo.

Polyrhachis (Myrmhopla) hippomanes Em. subsp. **ceylonensis** Em. ♀
One specimen at the lamp.

Polyrhachis (Myrmhopla) hippomanes Em. subsp. **lucidula** Em. ☿
Colonies in withered bamboo.
Possibly new var. or subsp.; in that case Mr. Viehmeyer suggests the name **lucidissima.**

Polyrhachis (Myrmhopla) bicolor F. Sm. ☿ ♀
Single specimens from the garden and from Cucub Id.; one ♀ from Gunong Angsi.

Polyrhachis (Myrmhopla) sexspinosa Latr. var. ***malaccana*** Viehm.
One specimen from Gunong Angsi.

Echinopla rugosa E. André. ☿
Colony in withered bamboo.

Echinopla pallidipes F. Sm. ☿
From the top of Gunong Angsi.

Echinopla melanarctos F. Sm. ☿
From the top of Gunong Angsi.

Chinese Exorcists

By W. G. STIRLING.

Exorcising used to be carried on in Malacca weekly, though it appears less popular today in Singapore and Penang. It is practised mainly by China-born Hokkiens of the vegetarian sect.

At many of these uncanny seances I have stood close to the medium and seen all that took place. At Taiping in 1912, a vegetarian festival was held where people walked bare-footed across a large coal fire, in which sinners, I suppose, got their feet burnt while the just crossed unhurt. Many mediums were present but I was unable to watch the preparation of these men, as no one except members of the sect was allowed inside the temple. Some of them carried on cord or chain a sort of ball (Fig. I.) with sharp spikes about 8 inches long with which they scourged their back and limbs. As these ghastly-looking persons walked about in the crowd one could see that their self-inflicted wounds were not mere scratches. On the fire they danced and jumped about without apparent discomfort and looked as if they were in a state of delirium.

These festivals, which are organized on account of drought, sickness or general distress, are nearly always accompanied by a procession. This is headed by two men, each carrying a large Chinese lantern inscribed in large Chinese characters with the name of the temple whence the chief god is taken. Next comes a man bearing on a red pole a large square black flag, inscribed with the mystic sign of the "Pat Kwa" or eight-sided diagram. Behind this flag-bearer, four others carry a litter on which lies a large drum which a fifth man beats. On either side walk eight men clashing brass cymbals at regular intervals. A number of the local gentry, tradesmen and others follow chanting a prayer and carrying lighted joss-sticks to perfume the way of the God. At a short distance comes a palanquin upon which the God is seated, exposed to view, so that He may detect the evil spirits that are distressing the district. His palanquin is carried shoulder high by picked men who belong to the particular tribe or clan who favour the temple. Now and again, as if driven by unseen force their burden is impelled forward, rather like a piece of wood driven by waves. The bearers make a dash to the road side and halt. The palanquin sways violently from side to side, and as suddenly as it has halted, so it is suddenly impelled forward again. The bearers with perspiration streaming from their faces get little rest, and now and again they emit a weird long drawn cry. The reason for this spasmodic progression is because the God is supposed to have perceived an evil spirit in the way and has made a dash to flog him mercilessly with his spirit whip (Fig II.) or to cut him in pieces with his magic sword. These punishments are administered by the God through his medium, the most interesting person in the procession.

Behind the palanquin come the priests and satellites of the temple and finally the followers of the God and members of the public. Sometimes more than one God is taken in procession according to the gravity of the distress.

When these processions take place the devout householder will erect an altar at his door on the route traversed by the God. On it are placed food, sweetmeats, tea and wine, a pair of lighted red candles, a censer filled with lighted incense, and as the God passes the householder with lighted joss sticks in his hands bows reverently. Sometimes the God stops before a door for a few moments to refresh himself. As the God moves off, the householder burns a goodly supply of mock paper money, and fires off a long string of crackers as a thank-offering. Having paraded the town, the God returns to his temple, and with due ceremony is restored to his shrine to the sound of much drum banging and crackers firing.

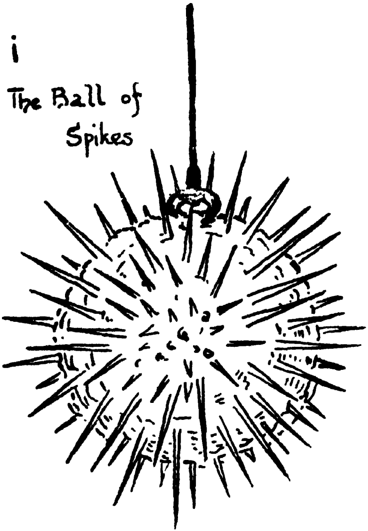
Each God of repute has at best one medium 神童 "Shan tung," literally a messenger from the Gods, a fairy, into whom he descends, to communicate orders and advice to the faithful. In the procession the medium stands on the poles supporting the palanquin, his place being just behind the throne on which the God is seated. From the look of his eyes and his deathly pallor, he appears to be in a state of delirium or trance. He is naked to the waist and his hair hangs dishevelled down his back. A long thin dagger is seated. From the look of his eyes and his deadly pallor he appears trickles (Fig. III). With a two-edged sword he cleaves the air, assaulting the evil spirits which he alone has the power to see (Fig. IV.). Suddenly the palanquin halts, and the medium leaps down and makes an onslaught on some invisible being. Having cut the spirit into a thousand pieces he runs back to the palanquin and resumes his place behind the God.

Other mediums have a thin dagger thrust through their tongue whence the blood drips on to sheets of paper, which are eagerly fought for by the crowd. What more potent charm against evil could there be, than this blood which contains the power of the Devil-dispelling God? So these paper charms are highly prized and are worn on the person or pasted over the door of the house.

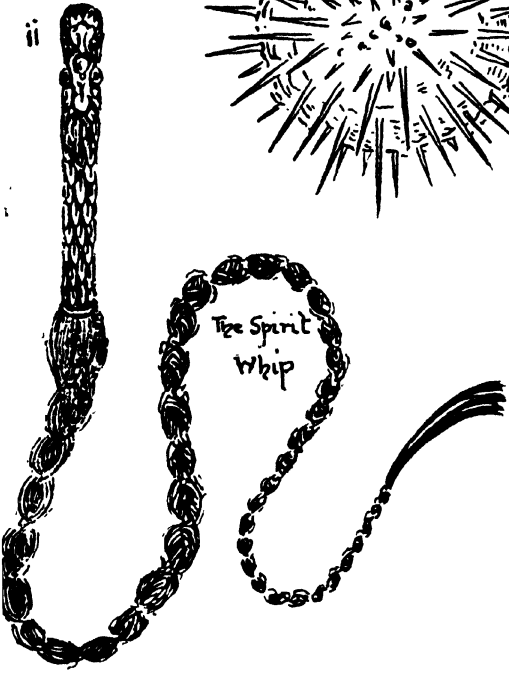
At times the God may order that his medium shall be carried in procession seated on a special red chair, of which the back, the arms, the seat and the foot-rest are fitted with sharp spikes

Fig: i

The Ball of Spikes

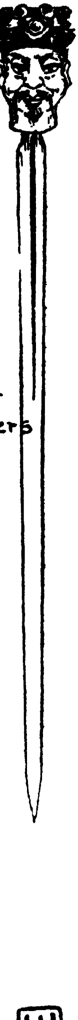


ii



The Spirit Whip

Fig: iii



one of the 5 Daggers

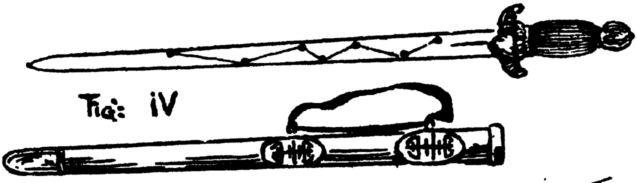


Fig: iV

The Spirit Sword (with the 7 stars. of the Great Bear.)

(Fig. V). Before the procession, pieces of paper are thrust on the spikes to catch the blood which flow from the wounds. These paper amulets also are highly prized as charms against the evil spirits.

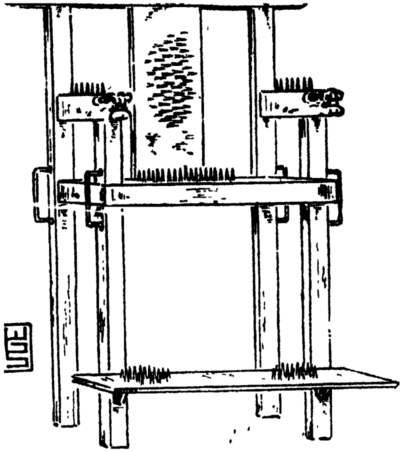


Fig. v.

The Spiked Chair.

The mediums are carried about for hours at a stretch, sometimes draped in a long red coat with a white fillet round the head. Livid and ghastly they hold the spirit sword or spirit whip with which they slay or belabour offending spirits. The spiked red chairs are fitted with long poles and carried shoulder high by a gang of sturdy men. At the back of the chair is fixed a black flag on which is to be seen the "Pat Kwa" and the character 斗 *tau,* "a peck," at the side, at the back a diagram representing the seven stars of the Great Bear, the character *tau* denoting this constellation. This black flag controls the spectre world and the constellation of the Great Bear rules the seasons and the course of the universe.

Weird blasts are emitted from long trumpets during the procession.

Close to the palanquin of the God are lesser mediums in a semi-hypnotic state. They dance and jump about, uttering weird cries and shrieks in a falsetto voice. On the God's return to his temple, the medium is released from his spell and returns almost at once to a normal condition.

The young men who become mediums are generally of a highly strung and impressionable nature. In ordinary life they are youths pale and physically weak. They cannot stand the strain and loss of blood for many years and the saying "that those whom the Gods love die early" is applicable to them. The so-called birth of a medium generally occurs at one of these religious ceremonies either during the procession, or at the temple. The youth is suddenly possessed; the expression in his eyes appears unnatural; he begins to dance and jump about, making guttural noises the while. Gradually he works himself into a frenzy. The by-standers catch hold of him and prevent him falling down. A priest is called and utters spells and incantations over him. Presently the youth starts to groan. his guttural noises grow louder until his voice is raised to a high falsetto pitch, intermingled with unintelligible shrieks. As the priest continues to utter spells over him, the youth stares round; his limbs shake and he is supported and guided to the altar before the God. Suddenly he staggers to the altar, and rests himself upon it as if he was going off to sleep. Then he jumps up with a start and proceeds to dance. The temple attendants seize hold of him. His whole body seems to shake. He grasps the sides of the table and swaying from side to side stares blankly into the gloom beyond, where the God is enshrined. During this time the priest has been burning (yellow) paper after paper upon which incantations have been written, while a temple attendant beats a drum at first slowly but then faster and faster. The medium every now and again bangs his clenched first on the table uttering groans and cries, like a person in great pain. This is the time to ask questions. An interpreter stands beside him. Questions are put through this interpreter. Incoherent shrieks are the answers. These answers are quickly written down in intelligible Chinese or translated by the interpreter. Finally the spirit announces his intention of taking his departure.

The drum is beaten. The interpreter takes a cup of water from the altar. Into it ashes from the yellow papers (bearing the incantations) burnt at the beginning of the proceedings, have been mixed.

Taking this water into his mouth, the interpreter spurts it full on the face of the medium, who jumps up and throws his arms above his head. For a second or two he stands there in an almost theatrical posture, and then sinks back into the arms of the attendants who have been waiting just behind him, to restrain him should he become violent. He revives almost directly, rubs his eyes and looks around him, and appears a normal being.

It is said that these men have no recollection of what has taken place. While the medium is possessed, his face is flushed, he perspires freely, and the veins on the temples stand out. The written answers are generally medicinal prescriptions; for most of the people who come to question these mediums are seeking medical advice for themselves or others.

These manifestations cannot occur except in close proximity to the God and if it is desired to consult the oracle where the patient cannot be moved from his bed, the God is carried to his house on a litter. On arrival the God is placed on an altar in the hall and incense, wines, sweetmeats and tea are placed before him. The God is then invited to descend into his medium who has accompanied the litter, and the prescription is taken down through the assistance of the interpreter. The medium is stripped of all upper clothing, a short white apron divided into three parts is tied round his loins, and a plain or embroidered red cloth, covering his stomach, is held in position by means of a cord round his neck and his waist. In the days of the queue this was unbraided so that the hair hung down his back in wild disorder. Armed with the two-edged spirit sword, the medium dances and hops around the room, uttering cries and shrieks. He whirls the sword about his head, over the sick man, under the bed; touches the bed, door posts, windows and furniture; throws aside the sword, seizes the spirit whip with its carved dragon stock and lashes the air; again he seizes the ball of spikes (Fig. 1.) and slashes his back till the blood flows: finally he runs a large needle through his tongue, and the blood is collected on sheets of paper which are pasted on the sick man's bed and over the windows, and doors of the house. If his ecstasy carries him further, the medium thrusts a devil-dispelling dagger through his cheek (Fig. III).

Presently the interpreter announces that he understands that the evil spirits are prepared under certain conditions to leave the sick man. It may not be necessary for the medium to go to the full extent of his performance as he may discover the offending spirit before he has exhausted his rites. The medium will perhaps dance his way to a spot in the house, or just outside the door to a tree, indicating by his gestures that the evil spirit has taken refuge there, and the tree must be uprooted and cut down. This being done, candles are lighted and offerings placed at the foot of the tree. Sometimes the tree is not felled but the axe applied 3 or 4 times till the medium indicates that this suffices.

Having run the evil spirit to earth, the God takes leave of his medium, who returns home. The God however is usually left in the sick man's house for a few days to keep watch and see that the evil spirit keeps his bargain. During these few days the divining blocks are used to consult the God regarding the treatment of the patient.

Should the patient recover, the God must be rewarded. Musicians are engaged and the God is carried back to his temple in triumph, the next male of kin following to worship and offer thanksgivings at the shrine. Some present must be given to the temple, and this probably consists of a pair of wooden scrolls on which Chinese characters in praise of the God have been carved. Needless to say there is much incense burning and cracker firing. At the annual festival of the God the sick man must offer suitable contributions.

Should the patient however not recover, the medium must try again by scourging and mutilating himself to find the evil spirit.

As the gong is beaten louder and faster, the shrieks of the medium grow more intense, his hands grip the altar table, and he cries to the God to capture and punish the evil spirit who has broken faith and is still molesting the sick man. After a while the interpreter reports that this has been accomplished, or that the sick man on account of the evil life he has led is being punished, and may have to appear at the Court of punishment, where the souls of those who have lived evilly are dealt with.

Often the sick man's garments are changed, the clean set of clothes being taken to the temple and laid out on the altar, when prayers are offered and incense burnt with plenty of mock paper money by the relations. If the case appears hopeless (and the temple attendants usually find out the chances of recovery beforehand, as it would not do for the God to lose face!), the interpretation of the medium's shrieks and cries are framed accordingly and no definite answer is given.

The daggers thrust by the mediums through their cheeks are one of a set of five. The hilt of these daggers bears a carved representation of one of the heads of the Five Generals of the North, South, East, West and the General of the Devil-destroying army of Heaven (Fig. III). A set of these five daggers is usually found on the altar, or stuck into the censer, in front of the God, at the place where these exorcists practise their rites. The world of evil spirits has no more powerful enemy than these five Generals, so that the head of one of them on the hilt of a dagger implanted in the body of the medium carries the power down the blade into the medium endowing him with greater power against the evil spirits.

In most instances the blade of this dagger is passed only through one cheek.

Chinese Loan-Words in Malay.

By A. W. Hamilton.

Since the earliest Chinese settlers in the Peninsula came from the Hokkien province and alone of all Chinese immigrants have attached themselves to the soil and come in daily and friendly contact with Malays it is not surprising that almost all the Chinese words incorporated in the Malay language have been borrowed from Hokkien, the vernacular of the Amoy district.

There are less than 200 of these loan words and most of them refer to articles of food and household utensils or games of chance, with no equivalent in Malay. Where a Malay word exists with a similar meaning sometimes a Chinese word has been borrowed to convey a shade of meaning applicable only to Chinese affairs. For instance *hōē* a "society" could be expressed by *pakatan,* or *kong-koan* a "club" by *persakutuan* but the Chinese terms are used for Chinese societies and clubs. Some words have been absorbed either through the Malay's ignorance of the resources of his own language or because it is easier to use a common foreign word which people understand rather than a pure but rare Malay word which the listener might not know.

For example *bali* "a cabin" could be rendered as *kurong* but both these words in colloquial Malay have been replaced by the English word 'keben.' Similarly *kuntau* could be rendered *bĕrtinju* and *teyen* as *bĕrantam* etc.

Words marked with an asterisk do not occur in Wilkinson's Dictionary, whilst those marked with an § occur in Shellabear's Dictionary.

Malay	*Hokkien*	
aboe ***apek**	*a peh*	uncle: a familiar form of address to elderly Chinese of the lower classes.
anglo	*hang lô·*	a brazier: a small portable earthen stove.
***angki**	*âng khī*	a persimmon (*pisang kaki* Mal.)
***angpau**	*âng pau*	a present or cumshaw given on occasions of rejoicing such as the new year, etc.
bali	*bâ lî*	a cabin on a junk.
bami	*bah mīⁿ*	a dish of vermicelli, pork and prawns.
banggi or **banji**	*bān jī*	a swastika-like pattern in Chinese lattice work or glazed tiles for windows and balustrades.

bĕleko	_béh lê ko_	a glutinous inspissated syrup made from new sugar, etc.
bepa or **bepang**	*_bí phang_	a sweetmeat, of small rectangular slabs of parched rice (_b. pulut_), or peanuts (_b. kachang_), or sesamum (_b. bijan_), and sugar.
*__becha__	§_bé chhia_	a riksha; (the Chinese words denote a horse carriage not a riksha which is _lâng chhia_ or man carriage).
botan	*_bó· tan_	the rose peony.
bo or *__batu bo__	_bō_	a handmill, a quern.
*__bimpo__	§_bīn pò·_	a handkerchief, or small face towel.
*__bi__ or *__kain bi__	_bî_	an ornamental fringe of drapery round the top of a bed.
chemer or *__cheme__	§_chhe_^{n} _mê_^{n}	blind: you blind idiot! (said in jest or scolding).
*__chĕmpiang__	§_cheng piàng_	gang-robbers.
chat	_chhat_	paint.
chang or **kueh chang**	_tsàng_	a confection of rice put up in bamboo leaves.
chang	_tsan_	a square net on a bamboo frame which is lifted out of the water (Malay _tangkul_).
chongpoh or **chompoh**	_tsóng phò·_	a cook.
chingge	_tsng gē_	a procession of decorated cars and floats bearing children dressed as puppets, etc., held on occasions of thanksgiving.
chĕki or **main chĕki**	§_chít ki_	a popular Chinese card game played with small oblong cards (_daun chĕki_). (W. _tsáp jī ki_ which is incorrect).
chan	_tsân_	a conical basket used by Chinese during the festival of the seventh moon.
chun	_chhùn_	a Chinese inch: $\frac{1}{10}$ of a Chinese foot.
chinteng	_chhin teng_	a revenue officer: a subordinate officer of the government Monopolies and Customs Department.
chinchau	_chhin chháu_	a cooling jelly made from a plant.

***chia**^{n}	*§chhiá*^{n}	to entertain: to give a Chinese dinner.
chinchu	*tsûn tsú*	the supercargo of a Chinese ship: the owner's representative on board ship who is both purser and supercargo.
chiu or **chu**	*chíu*	spirituous liquor.
***chimche**^{n}	*§chhim ché*^{n}	an air well or open area in the centre of a house.
chukin	**chhiú kin*	a bathing cloth worn round the loins.
chi	*chî*^{n}	a Chinese measure of weight used especially in weighing opium: a mace or $\frac{1}{10}$ of a tael.
che^{n} **che**^{n}	*§chhē*^{n} *chhē*^{n}	Chinese cymbals.
***chaipoh**	*§chhài pó*	dried and salted turnips.
***chapjiki**	*tsáp jī ki*	a lottery of twelve letters or signs also a game of chance played on a board with 12 squares corresponding to the letters (the latter game is often termed *chapjiki panjang*).
guwa or ***goa**	*góa*	I: the first person singular sometimes used in speaking to Chinese.
***gimpai**	*gîn pâi*	a silver or gold ornament like a locket suspended round the neck by a chain.
***ginchu**	*gîn chu*	rouge for the face, lit., vermilion.
hong	**hong*	the paper on which the stakes for a Wah Weh lottery were entered, (*hong* means to seal up as a package or letter); *kaki hong* a gambling tout who goes round collecting the stakes for a Wah Weh lottery and enters them on a staker's ticket; *tikam kaki hong* to stake with such a person.
hun	*hun*	a Chinese weight used in weighing opium: a candareen or $\frac{1}{10}$ of a mace or $\frac{1}{100}$ of a tael.
	**hun*	(2) a Chinese measure of length of a Chinese inch.
	**hūn*	(3) a share, a portion.
***hoe**	*hōē*	a society especially a secret society Tian Te Hoe (Thien Tē Hōē) The Triad Society.

***hoesiu^{n}** or **wesiu^{n}**	§*hôe siū^{n}*	a Chinese priest.
inchi	*ien chi*	rouge: coloured powder for dyeing sweets, etc.
jĕpun	*jít pún*	Japan.
jose	*jiàu se*	crepe.
***jiho**	§*jī hō*	a character or phrase used as a mark or sign: a sign over a door to represent the firm.
kingkit	**kim kiet*	a tiny red lime.
kanar	**ka ná^{n}*	the Chinese olive eaten salted or as a sweet preserve.
kangsin	**kan sîn*	a treacherous person, a traitorous minister in Chinese plays.
kongsi	*kong si*	a partnership, a society, an association, a club: *kongsi gĕlap* a secret society.
***kongkoan**	*kong koán*	a Chinese club.
kipsiyau	**kip sio*	a pipkin: a small earthen pot with straight handle and spout that can be put on the fire.
***kampoh**	§*khàm pò·*	to cover with a cloth (used as a command to riksha pullers to put up the hood and apron etc.). *becha bĕrkampoh,* a closed up ricksha (as used by Malay women).
kun	*kún*	a border: an edging: a trimming
kuntau	*kûn thâu*	to box: *bĕrkuntau, main kuntau*
kuchai	§*kú chhài*	leeks.
***koachi**	*koa chí*	dried melon seeds for eating.
koyok	**ko· ióh*	medicinal plaster.
kĕchuak	*ka tsoáh*	a cockroach.
***kichak**	§*khit chiáh*	a beggar.
***kapchio**	*khap chhiò*	a gambling game of heads or tails played by spinning a Chinese cash on a smooth board.
***kekwa** or ***bunga kekwa**	*kek hoa*	the chrysanthemum.
***kamchai**	§*kiâm chhài*	salted vegetables especially the mustard plant soaked in brine.

***kangka**	*káng kha*	a hamlet or large communal shed, usually on a river occupied by Chinese engaged in some pioneer undertaking such as a gambier estate: *káng kha* denotes a port or landing place near the limits of navigation upstream.
lengkeng	*lêng kéng*	the dragons eye fruit (Malay, *mata kuching*).
langkan	*lân kan*	a balustrade: a railing.
***lanchiyau**	*lān chiáu*	the penis: a term of abuse (W. *lan*).
lu	*lú*	you: the second person singular employed in speaking to Chinese.
loteng	*lâu téng*	an upper storey: upstairs.
lochuan	*liók chhòan*	a strong silk fabric used by Malays for making loose trousers.
***lai** or **buah lai**	§*lâi*	a pear.
laichi	*nāi chi*	the fruit *Nephelium litchi.*
loki	*ló· kí*	a Cantonese prostitute. *rumah loki*, a brothel.
***langcha**(Pen.)	*lâng chhia*	a riksha.
losun or ***sakit losun**	*lóh sún*	consumption, to fall into consumption.
***naik lotang**	*lóh tâng*	to get into a rage: to get violently angry, to be possessed.
mek	*méh*^{n}	the pulse.
***mi**^{n}	*mī*^{n}	flat strips of wheaten dough eaten as macarroni.
***misoa**^{n}	§*mī*^{n} *soà*^{n}	vermicelli
nyolo	**hiu*^{n} *lô·*	a brazier for burning incense.
***nia**	*niá*^{n}	a collar.
pá puwi	**poáh poe*	a method of taking the auspices in Chinese temples with the aid of two kidney-shaped blocks of bamboo root.
pakau	*phah káu*	a Chinese game of cards resembling vingt et un played with European cards: *daun pakau*—European playing cards.
pangkeng	*pâng keng*	a bedroom: a cubicle: a sleeping bench.
panju	**pán jiū*	a handkerchief: a napkin.
po	*pó*	a Chinese gambling game played with an oblong brass dice box.

pohok or **po' ok**	§*póh hô*	peppermint used medicinally *minyak po'ok*.
pechun	**pê tsûn*	the dragon boat festival (properly *pê lêng tsûn*).
pekak	§*peh kak*	aniseed.
***paikau**	*pâi káu*	Chinese dominoes.
***pechai**	§*péh chhài*	white cabbage (*sayor puteh*).
***pebin**	*peh bīn*	a gambling game played with a teetotum having 8 facets.
***pokoa**^{n}	*pó koa*^{n}	the croupier: the manager of a gaming table.
***pit**	*pit*	the Chinese brush pen.
***pa' bu**	§*phah bú*	a mixture of boxing and tumbling *main pa' bu* to tumble as an acrobat.
popia^{n}	§*póh pía*^{n}	a thin pancake.
pongkis	§*pùn ki*	a wicker shovel basket with handles.
***poya**	*pû hia*	a wooden scoop used for bailing.
sengse	*sin se*^{n}	a Chinese doctor.
singke	*sin kheh*	a coolie fresh from China, a new comer, a greenhorn.
som		a Chinese herbal root used as a tonic: *akar som*.
sampan	*sam pán*	a sampan: a small boat.
sowah	*soah*	over, finished, ended, done with.
sipuwa	*sǹg poâ*^{n}	an abacus.
sehu	**sai hū*	smart: clever: an adept: a skilled workman: skilled in any particular art.
***samseng**	*sam seng*	a professional rough.
***susek**	§*sù sek*	a Chinese card game played with small cards of four colours.
***se**^{n}	§*sè*^{n}	a cognomen.
***sia**^{n}	*siā*^{n}	a basket consisting of several horizontal trays fitting into each other. *mangkok sia*^{n} an enamel tiffin basket.
***siki**	*sì ki*	a Chinese card game.
***sue**	*soe*	misfortune: illstarred: anything bringing bad luck.

tepoh	*teh pó*	vide *pó*: in Chinese *teh pó* means to stake at *pó* so that *main po* is the correcter expression in Malay.
***titang**	*tê tháng*	a padded rattan basket used as a tea cosy.
teng	*teng*	a Chinese lantern: a lamp.
tĕngsi	*thng sî*	a soup spoon.
tangsi	*thâng si*	gut.
tanglong	*teng liông*	a Chinese lantern.
tapekong or **to' pekong** or **tokong**	*toā peh kong*	a Chinese joss: a Chinese temple.
tek pi	**thih pi*	a short trident used in hand to hand fighting.
tim	*tīm*	to stew by cooking in a covered receptacle.
towakang	*toā khang*	a person puffed up with conceit: superciliousness.
tauchang	*thâu tsang*	a queue: a pigtail.
toko	*thó· khò·*	a warehouse: a godown.
tauke	*thâu ke*	a towkay: a well to do Chinese: an employer of labour: the head of a business.
tauge	*taū gê*	bean sprouts eaten as a vegetable.
teh	*tê*	tea.
tesi	*tê sî*	a teaspoon.
tiyap	**thiap*	a dose of medicine: a small bundle of Chinese drugs (*ubat tiyap*).
***tekoh**	§*tê kó·*	a European teapot.
***taiko**	§*thái ko*	leprosy.
teyen	§*tê iên*	to get up a subscription.
***toako**	§*toā ko·*	a large lighter built on the lines of a sampan: a *toakow*.
***taijin**	*tāi jîn*	a Protector of Chinese: *opis taijin* the Chinese Protectorate.
***tauyu**	§*taū iû*	bean sauce: soz.
***tauhu**	*taū hū*	bean curd shaped but not pressed.
***tawa**	§*thàu á*	an informer: a gambling informer.
***tekong**	§*tāi kong*	coxswain: steersman.
***toaha** or **toha**	§*toà hà*	mourning: *pakai toaha* to be in mourning dress.
***toa**^{n}	*thoa*^{n}	the game of fan tan.

***tekoan**	*§tê koàn*	a Chinese squat round teapot with small spout.
***tia^{n}**	*§thia*^{n}	the front hall of a Chinese house.
tahang	**tháng*	a tub: a bath tub.
unchui	*hun chhoe*	a tobacco pipe.
usai	*o· sái*	opium dross.
upau	*io pau*	a small satchel or purse.
ui	*hûi*	earthenware: pottery.

Probably derived from Chinese.

anglong	a pavilion: a summerhouse: ? from *loñ̂g* 'a covered portico: a saloon + the word *ang* 'red' the colour of rejoicing, but the combination is unknown in Chinese.
chawan	a porcelain cup or bowl? from the Cantonese *chhâ wun*.
locheng	a bell from *cheng* 'a bell or gong with a boss' + the word *lô* = 'a gong without a boss' but the combination *lô cheng* is unknown.
potiya	an overseer of labour: from *pò tiù*^{n} headman of a ward in a town.
tengkoh	opium dross: ? from *ko* 'opium dross' + *teng* 'a lamp' a combination unknown in Chinese.
ponteng	'to bilk' is in use in local Chinese in the form *phùn teng* where *phùn* means to 'run away and escape.'
tong	'a tub' from *thoñ̂g*.
banchi	a census, from *bîn chék* 'an official roll of people belonging to a place or district.'
tolo	'the headman of a gambier plantation', from *tiú*^{n} *ló*.
chengki	a run of luck: to expose lottery tickets at a *karamat* to find out the lucky number; from *sēng ki* to take advantage of an opportunity.
[illegible]	a game like draughts, from *chhiū*^{n} *kî*.
chunza	a small boat at Batavia; from *tsûn* 'a small boat.'
daching	a steelyard? from the Cantonese *tāi chhèng* or big steel-yard.
pĕrni	a Chinese bowl for gold fish ? = *phûn* a bowl.

kang	a wide mouthed tub ? from the Cantonese *końg* ‘a widemouthed earthenware jar.’
anchong	a glazed earthenware pot ? from Cantonese *hâm chiong* ‘a covered earthenware pot.’
chiyau	‘to row standing’ ? from the Chinese *chiú*^{n} ‘an oar’ but ‘to row standing’ is *kò chiú*^{n} not *chiú*^{n} alone.
dohut or **buah dohut**	a peach ? from *thô* a peach, it may be from a mistaken use of *thô hút* ‘a peach stone.’
kok	‘a yoke’ ? from *pi*^{n} *kó.*
kueh	cakes; *kóe* ‘soft cakes pastries.’
giat	to tease from *giet* ‘to joke or jibe at a man.’
kencheng	a Chinese drill worked with a bow, from *keng tsng.*

Possibly derived from Chinese.

bichu	a screw jack.
tajin	starch.
main top	a Chinese game.
main tuwi	do.
tike	a small pellet of opium prepared for a pipe.
chowek	a soup plate or bowl of Chinese make.
ka	a Chinese game of cards.
kĕlenteng	a Chinese temple.
kinchir	a waterwheel.
tongkang	a tongkang.
jong	a junk.
lakyu	a chopper of Chinese make.
koyam	broth of flour meal.
kuwi	a brazier’s mould.
koseng	cleaned out at gambling.
kuwa	a card game.
inchar	a drill bore.
opar	plain cooking of meat, etc:

Three New Races of Sciurus vittatus

By F. N. CHASEN *and* C. BODEN KLOSS

(Records of the Raffles Museum, No. 1)

On the Malay Peninsula and its islands occur two groups of the subspecies of *Sciurus vittatus,* the common red-bellied squirrel of Malaysia:—the *miniatus* group, distinguished by a deep rufous tail-tip without black annulations and by richly coloured underparts; and the *vittatus* group in which the tip of the tail is annulated and at most suffused with red while the underside of the body and limbs are paler: the latter may again be divided into two local subgroups, one represented by *peninsularis* (very close to the typical *vittatus* of south-west Sumatra) with richer, more ferruginous underparts; the other consisting of forms like *subluteus* with paler, more ochraceous underparts.

S. v. miniatus occupies the greater part of the Malay Peninsula and is based on specimens from Trang in Peninsular Siam: it extends south without interruption at least as far as North Johore on the West and probably occupies all the country north of the Pahang River in the east. It also occurs sporadically in the extreme south of Johore (Gunong Pulai, shores of Johore Strait and Sedili district).

S. v. peninsularis described from the mouth of the Endau River, south-east Pahang, possibly extends north to the Pahang River and even beyond: it is found throughout Johore except in the north-east and in the extreme south-east corner where, south of the Lebam River, occurs *S. v. subluteus.*

The races on the islands belong in nearly every case to the group occupying the adjacent part of the mainland. Thus the squirrels of Penang and the islands off Kelantan and Trengganu are of the *miniatus* group; those of Tioman and Tinggi islands of *peninsularis* type, as is the very variable and doubtfully distinct squirrel of Singapore which has been named *singapurensis.* The animals of most of the islands off the East Johore coast are yellow-bellied, like *subluteus*: and though these islands (Pemangil, Aor, etc.) are geographically nearer the *peninsularis* than the *subluteus* area it may be noted that these three places lie farthest to the west as does Mapor Island in the Rhio Archipelago where another *subluteus* squirrel occurs. The remaining islands of the Rhio Archipelago are inhabited by *peninsularis* forms, as is South-east Sumatra.

Broadly speaking, the *miniatus* forms are purely continental while the *vittatus* forms occur elsewhere in Malaysia except in the Javanese province.

In going over the *vittatus* squirrels in the Raffles Museum we have found examples from three islands that seem as worthy of distinction as others that have been named.

Sciurus vittatus lighti subsp. nov.

Like *S. v. miniatus* Miller, but with the rufous area of the tail less extensive, the dark lateral stripe shorter, less black and much grizzled with tawny.

In the minority of specimens the dark side stripe is almost as intense a black as in the mainland race, but in the majority it is overlaid with the colour of the abdomen while in some examples it scarcely differs in colour from the back. The island animals as a series are quite distinct from a series of the mainland *S. v. miniatus.*

The degradation of the black stripes by the colour of the underparts is the first step towards their disappearance and the squirrel of Penang Island exhibits the same tendencies as those inhabiting the Redang and Perhentian Islands in the same latitude on the east coast of the Peninsula.

Type. Adult male collected at Telok Bahang, Penang Island, West Coast, Malay Peninsula by E. Seimund on 13th March 1911. Field No. 4119.

Specimens examined. Nine from the same locality.

Sciurus vittatus stellaris subsp. nov.

A race of the *peninsularis* sub-group of subspecies, but with the back darker, more blackened than any others.

Type. Adult male collected at Pasir Panjang, Bintang Id., Rhio Archipelago by H. C. Robinson and E. Seimund on 8th June 1908. No. 1736/08.

Specimens examined. Five from the type locality.

Sciurus vittatus lunaris subsp. nov.

Like *S. v. stellaris* with a dark back, but the underparts a little less deeply rufous, sides of the face greyer, pale lateral stripe creamy rather than buff and the tail, especially beneath, paler on account of the lighter colour of the creamy annulations.

Type. Adult female collected on Bulan Island, Rhio Archipelago by F. N. Chasen on 3rd April 1924. Field No. 9.

Specimens examined. Seven from the type locality.

Notes on the Fauna of Pulau Bulan, Rhio Archipelago.

By F. N. Chasen.

(**Records of the Raffles Museum, No. 2**)

Pulau Bulan lying to the west of Batam and separated from that larger island by a very narrow strait was not included in the mammal survey of the Rhio-Archipelago made by the Federated

Malay States Museums department in 1908. Previous to this date the island seems to have been visited once only by a naturalist, viz., Dr. W. L. Abbott in 1907.

The results of a short collecting trip of ten days on behalf of the Raffles Museum at the beginning of April 1924 may therefore be worth recording. The main object of the visit was to collect mammals but these proved so scarce that the opportunity was taken to obtain small collections of other animals.

The whole island is leased by the Netherlands India Government to a rubber company and on account of the energy shewn by the latter in opening up the country to grow rubber and coconuts it would be difficult to imagine a more depressing place from a naturalist's point of view. All those parts visited were either plantations, or covered with a secondary growth difficult to penetrate. A certain amount of timber remains on the northern slopes of the peak but this is not large and is too isolated to afford shelter to many animals. There is supposed to be some jungle on the western coast but it was not found possible to visit this area in the time available. The highest point, Bulan Peak, rises about 800 ft. and on account of its isolation and shape forms a conspicuous landmark.

The history of Pulau Bulan would no doubt prove of considerable interest if investigated. Tradition holds that it was a pirates' home; and a straight channel cut through the mangrove area from sea to sea at the northern end is supposed to have been dug as a means of escape and is still known as "Selat Acheh." Small cannon of rough workmanship have been discovered on the island. The opportunity has been taken of incorporating in these notes, several records of specimens sent to the Museum by Mr. and Mrs. de Burgh Thomas, who live on the island, and to whom we are very much indebted for assistance.

In the following lists of mammals and birds all those species hitherto known from the island are included, but only those obtained in the collections made in April 1924 have a number prefixed.

MAMMALS

1. **Macaca irus** (Cuv.).

2 ♀

Elliot has separated the animals from Bintang and Batam as *bintangensis* which is stated to differ from the Singapore race (*dollmani*) in larger size, different cranial characters and in colour, having the top of the head redder, the arms more thickly speckled with yellow and the legs much paler ("a smoke-grey instead of iron grey").

The limited material at our disposal compared with a female from Singapore island tends to bear out these colour differences but animals from Bintang and Batam can be exactly matched by specimens from the mainland of the Malay Peninsula and we therefore leave the specimens listed above under a binominal.

Presbytes cristata (Raffles).

Small numbers of a dark monkey seen in the mangrove, but not collected were probably *P. c. pullata* Thos. and Wr., of Bintang and Batam Islands. This langur is said to be common on the island.

[The tiger, although recorded from Bintang, has never been known to visit Bulan, a somewhat surprising fact considering the abundance of pigs on the island.]

Arctogalidia trivirgata fusca Miller

A specimen collected by Dr. W.L. Abbott is recorded by Lyon under the above name but as the animals from Bintang and Batam have since been separated re-examination of the specimen is desirable.

2. **Tragulus javanicus stanleyanus** Miller

3 ♂

Quite typical examples of this race described from Batam.

[The Kijang (*Muntiacus muntjak*) appears to be quite unknown on Bulan and no form of the smaller mouse-deer (*T. kanchil*) has been discovered.]

3. **Sus cristatus andersoni** Thos. & Wr.

3 ♂

Unfortunately two of the specimens are not fully adult but they appear to answer fairly well to the description given for this subspecies. This pig, the "babi-utan," is very plentiful.

It seems tolerably certain that the large *Sus barbatus* does not occur in Bulan.

Ratufa affinis bulana Lyon

No giant-squirrels were met with on the present occasion.

4. **Sciurus vittatus lunaris** Chasen and Kloss

5 ♂, 2 ♀.

A peculiar insular race, fairly numerous and at times very destructive in the coconut plantations.

5. **Rattus concolor** (Blyth)

3 ♂

Best left under a binominal title until compared with topotypical material from Burma and Sumatra. Taken in the grass near an empty house.

6. **Rattus rattus diardi** (Jent.)

3 ♀

Found side by side with the next form.

7. **Rattus rattus rhionis** Thos. & Wr.

8 ♂, 6 ♀

These specimens are probably best referred to *rhionis*, described from Bintang and also found on Batam (the neighbouring island of Bulan) and Sauh Island. They are very dark above and differ markedly from the grey-bellied *diardi* and from the usually lighter, white-bellied form of "country-rat."

Cynopterus brachyotis (Muller)

Emballonura monticola monticola Temm.

Cheiromeles torquatus Horsf.

Not uncommon, but not obtained.

8. **Scotophilus castaneus** (Horsf.)

2 ♂, 1 ♀

Not previously recorded from the Rhio-Archipelago. With the exception of the last-mentioned species no bats were seen on the wing. The specimens listed were obtained from a cluster of bats found resting, during the day, on the underside of the leaf of a coconut-palm.

Manis javanica Desm.

Obtained by Dr. Abbott.

BIRDS.

The birds are of no particular interest being mostly representative of the common lowland fauna of the Malay Peninsula and Sumatra.

The common birds of the island were very strong numerically: pigeons and sunbirds were particularly plentiful.

The specimen of *Treron fulvicollis* is perhaps worthy of note, as this species and *Ptilinopus jambu* seem to be the least common of the local small pigeons. *Leptocoma brasiliana* was the common sunbird in some parts of the island. The Java sparrow *(Munia oryzivora)* seems to have established itself fairly well but the only bird shot showed unmistakeable signs of having been kept in captivity.

Turnix pugnax *Temm.*

1. Treron f. fulvicollis *(Wagl.)*
2. *Treron v. vernans (*Linn.*)
3. Treron olax (*Linn.*)
4. Ducula a. aenea *(Linn.)*
5. Streptopelia chinensis tigrina *(Temm.* and *Knip)*
6. Chalcophaps i. indica *(Linn.)*

Butorides striatus *subsp.*

Haliaetus leucogaster (*Gmel.*)

Haliastur indus intermedius *Gurney.*

Halcyon chloris *subsp.* cyanescens (*Oberh.*) ?
Anthracoceros coronatus convexus (*Temm.*)
Caprimulgus macrourus bimaculatus *Peale*
Hemiprocne longipennis harterti *Stresem.*
Micropus affinis subfurcatus (*Blyth*)
Cacomantis *sp.*
Centropus bengalensis javanensis (*Dumont*)
Dinopium javanense *(Ljung)*
7. Dicaeum t. trigonostigma (*Scop.*)
Chalcostetha c. calcostetha (*Jard.*)
8. Aethopyga s. siparaja (*Raffles*)
9. Leptocoma b. brasiliana (*Gmel.*)
Leptocoma jugularis ornata (*Less.*)
10. Anthreptes m. malaccensis (*Scop.*)
11. *Hirundo j. javanica (*Sparrm.*)
Anthus richardi malayensis *Eyton*
12. Munia oryzivora (*Linn.*)
13. *Munia atricapilla (*Vieill*)
14. Gracula j. javana (*Cuv.*)
15. *Aplonis panayensis strigata (*Horsf.*)
16. Orthotomus sepium cineraceus *Blyth.*
17. Orthotomus atrigularis *Temm.*
18. Dissemurus paradiseus platurus (*Vieill.*)
19. *Rhipidura j. javanica (*Sparrm.*)
Pycnonotus goiaver analis *(Horsf.)*
20. Copsychus saularis musicus (*Raffles*)
21. Pycnonotus p. plumosus *Blyth.*
22. Chloropsis viridis zosterops *Vig.*
23. Mixornis rubricapilla pileata (*Blyth*)

The nests and eggs (or nestlings) of those species marked with an asterisk were seen or obtained. The birds of the above list were, with few exceptions, common.

The Malaysian Members of the Genus Fregata

By F. N. CHASEN *and* C. BODEN KLOSS

(Records of the Raffles Museum No. 3)

When Ogilvie-Grant dealt with the frigate-birds in 1898 (Cat. Birds. Brit. Mus. XXVI., pp. 442-449) he recognised but two species, a large and a small one, *Fregata aquila* (Linn.), and *F. ariel* (Gould); but Mathews has since shown (Austral Avian

Record, II, pt. 6, 1914) that other species also exist and has furthermore described several new sub-species. Re-examination of all specimens, especially those obtained prior to the publication of Mr. Mathews' paper, is therefore desirable and we are indebted to Dr. E. Mjoberg of Sarawak and Dr. K. W. Dammermann of Buitenzorg for the opportunity of examining the frigate-birds in the collections under their charge.

Accepting the correction given by Rothschild (Nov. Zool. XXII, p. 145, 1915) as to the provenance of *F. minor* (Gmel.), we find that the following forms have to be included in the Malaysian avifauna :—

F. aquila (Linn.)
F. andrewsi Math.
F. minor minor (Gmelin)
F. minor aldabrensis Math.
F. ariel ariel (Gould)

Adapting the keys given by Rothschild (loc. cit. p. 146) we have for the Malaysian forms :—

Adult males.

1. {Large white patch on sides of abdomen = *F. a. ariel*
   {No white patch on sides of abdomen = 2.

2. {Wings black = *F. aquila*
   {Wings with brown band = 3.

3. {Abdomen and vent black = 4.
   {Abdomen and vent white = *F. andrewsi*

4. {Smaller, wing 530-550 mm. = *F. m. minor*
   {Larger, wing 580-600 mm. = *F. m. aldabrensis*

Adult females.

1. {Entirely dark below = *F. aquila*
   {Breast white = 2.
   {With distinct nuchal band = *F. a. ariel*

2. {Abdomen dark = 3.
   {Abdomen white = *F. andrewsi*

3. {Back pale brown = *F. m. minor*
   {Back metallic = *F. m. aldabrensis*

Large species.

1. **F. aquila** (Linn.).

The skin of an adult ♂ from "Malacca" (coll. W. Davison) formerly in the Hume collection and now in the British Museum (Cat. Birds XXVI., p. 447) is considered by Rothschild (loc. cit.) to be indistinguishable from Ascension Island males and therefore *F. aquila*. He suggests it is a stray bird blown from its course or possibly a mistake in labelling has occurred. Robinson and Kloss (Journ. Nat. Hist. Soc. Siam, V., No. 1, p. 85 1921) state that this specimen is obviously the bird from Pulau Nongsa in Singapore Straits described by Hume (Stray Feathers, IX, p.119) under the name *F. minor* (Gm.), but it must be pointed out that Hume's description of this specimen, which was actually obtained by Kelham, is not that of an adult ♂ *F. aquila,* but seems to be referable to an immature *F. a. ariel* which, as far as our limited material shows, is the species most likely to occur in the Singapore Straits.

2. **F. andrewsi** Math.

Specimens examined:—Christmas Island (Indian Ocean) 7; Buntal, Sarawak 1; Santubong, Sarawak, 1.

Wings, ♀ 638, 646, 647, 660.

Culmen, ♂ 110, ♀ 131, 132, 132, 134; imm. sex? 128, 129.

Not hitherto recorded from elsewhere than the type locality, i.e., Christmas Island.

Small species.

2. **F. ariel ariel** (Gould) fide Rothschild

(? *F. ariel tunnyi* Mathews)

Specimens examined:—Pulau Tioman, E. coast Johore 1; Londong Kai Pt., Johore 1; Horsburgh Lighthouse, 33 miles E. Singapore 3; Edam, Bay of Batavia 2; Rembang, E. Java 3; Sijinkal, Sarawak 1; (Buru, Moluccas 4.)

Wings, ♂ 508, 512, 519, 524, 529, 530, 535, 539, 550, 554.
♀ 526, 526, 555, 578 (!).

Culmen, ♂ 81, 82, 84, 85, 85, 86, 87, 87, 87, 89, 90.
♀ 89, 89, 94, 95.

F. a. ariel is probably the frigate-bird occurring most commonly on the coasts of the Malay Peninsula.

4. **F. minor minor** (Gm.) fide Rothschild

(*F. minor listeri* Mathews)

Specimens examined:—Christmas Island 2.

Wings, ♂ 551, 565.

Culmen, ♂ 92.

This bird can be readily distinguished from *F. a. ariel* by its large beak, particularly the breadth at the base.

5. **F. minor aldabrensis** Math.

The skin of an adult ♀ in the Sarawak Museum, obtained at Buntal in Sarawak in 1899, must be attributed to this sub-species. The throat and foreneck are distinctly greyish white, the rest of the head and neck blackish. Breast white, abdomen, vent and under tail coverts black. Back very dark brown with a metallic sheen. A conspicuous pale brown wing bar.

Two other specimens from the Buitenzorg collection are also referable to this form. The backs are so dark that they might almost be described as glossy black. The wing bars are a shade darker than in the Sarawak bird. In one specimen the throat is perhaps rather too dark to be described as "greyish white." These three skins fall readily into *aldabrensis* if Rothschild's key is used. The metallic blackish back immediately separates them from *F. m. minor* which is stated to have this region "paler brown" than "black brown" and which is the form one would expect to occur in Malaysian waters.

Specimens examined:—Buntal, Sarawak, 1; (Leksoela, Buru, Moluccas 2.)

Wings, ♀ 562, 575, 588.

Culmen, ♀ 109, 115, 120.

This form was supposed to inhabit the Western Indian Ocean only. If good and if our determinations are correct it wanders far into the range of an allied subspecies.

Some Birds of Christmas Island (Indian Ocean).

By F. N. Chasen *and* C. Boden Kloss

(Records of the Raffles Museum. No. 4)

A small collection of zoological specimens was made on Christmas Island in October and November 1923 by two Dayak collectors of the Raffles Museum and Federated Malay States Museums Department who spent about a month on the island. As there are several species to record as new to the locality we have written this note.

Seven birds have been described as indigenous to Christmas Island; *Turdus erythropleurus* and *Carpophaga whartoni* by Sharpe in 1877, and *Zosterops natalis, Collocalia natalis, Chalcophaps natalis, Urospizias* [*Astur*] *natalis* and *Ninox natalis* by Lister in 1888. The recently made collections show that all these species persist to the present day though the last two are each represented by a single specimen only.

Carpophaga whartoni, Turdus erythropleurus and *Zosterops natalis* have been introduced into Cocos-Keeling atoll ("Coral and Atolls", Wood Jones, 1910) but information as to their present status is lacking. The pigeon has possibly died out.

To the list of 31 birds given in the Monograph of Christmas Island (Andrews, 1900) must be added the following species in the Raffles Museum collection taken in 1904 by Hanitsch:—

Glottis nebularius (Gunn.)

Nettion gibberifrons (S. Mull)

Aethiopsar grandis javanicus (Cab.)

and yet four other species obtained during the visit of last year:—

Butorides striata amurensis (Schrenck)
Gracula j. javana (Cuv.)
Munia oryzivora (Linn.)
Anthus richardi malayensis Eyton

For the sake of completeness a few measurements of specimens taken in 1904 have been added to the list below.

1. **Ducula whartoni** (Sharpe)

Wings ♂ 270, 270, 271, 271, 274; ♀ 265.

Irides very rich yellow, beak slaty black, feet dull red, (from a pair brought alive to Singapore). All the specimens are strongly washed with vinous below.

2. **Chalcophaps indica natalis** Lister

Wings, ♂ 143, 145: ♀ 136, 137.

♀ "Irides brown", ♀ "irides brown and legs red" (coll. Raffles Mus., R. Hanitsch, 1904). Lister's original statement that *natalis* has a stouter bill than *indica* is confirmed by a series of ten (♂ ♀) *indica* from Sarawak and the Malay Peninsula in the Raffles Museum.

3. **Anous stolidus pileatus** (Scop.)

Wings, ♂ 276 imm., 281 subad.; ♀ 270, 282, 282.

4. **Glareola maldivarum** Forst.

5. **Charadrius leschenaulti** Less.

6. **Demiegretta s. sacra** (Gm.).

7. **Butorides striata amurensis** (Schrenck).

Wing, ♂ subad. 203.

The crown streaked with pale buff and the back washed with brown.

The specimen of this large-winged northern form is perhaps the most interesting addition to the Christmas Island list.

8. **Fregata andrewsi** Math.

vide p. 64.

9. **Sula leucogaster plotus** (Forst.)

Sula sula (Linn.), Ogilvie Grant, Cat. B. Brit. Mus., XXVI, p. 447 (1898).

Sula leucogaster (Bodd.), Mathews, A Manual of the Birds of Australia, Vol. 1, p. 72 (1921).

Wings, ♂ 400; 396, ♀ 419 (Coll. 1904)

These rather large birds should no doubt be placed with ***plotus*** ("near New Caledonia").

10. **Sula sula rubripes** Gould

Sula piscator (Linn.), Ogilvie Grant, Cat. Brit. Mus., XXVI, p. 432 (1898).

Piscatrix sula (Linn.), Mathews, A Manual of the Birds of Australia. Vol. I, p. 74 (1921).

Wings ♂ 389, ♀ 392, imm. ♂ 377, imm. sex? 384 (other specimens moulting).

These birds are referred to *rubripes* Gould, purely for geographical reasons. None of the birds in brown plumage in the Raffles Museum have the serrated tomia of the older white birds.

11. **Phaethon rubricauda westralis** (Mathews)

Wings, ♂ 337, ♀ 334, 335.

Culmen, 65, 64.5, 61.

Showing the small bill attributed to *westralis* but perilously near to typical *rubricauda* (Mauritius) in wing-range.

12. **Phaethon lepturus fulvus** Brandt.

Wings, ♂ 271, 274, 295, ♀ 280, 282, 300, sex? 283.

Grant gives 32 inches for the total length but one ♀ collected exceeds this by 2.25 inches.

13. **Astur natalis** (Lister)

One example only.

14. **Ninox natalis** Lister

One example only.

15. **Collocalia neglecta natalis** Lister

Wings, sex? 97; ♀ 97.5, 103.5 (1904)

An insular race of *C. neglecta*, G. R. Gray (Timor)

16. **Turdus javanicus erythropleurus** Sharpe

Wings, ♂ 108, 111, 113, 114, 116, 119, ♀ 112, sex? 114.

It seems to us that this thrush may well be regarded as a race of *T. javanicus* Horsfield.

17. **Gracula j. javana** (Cuv.)

Wing, ♀ 189.

A large bird, but apparently of the typical form and not approaching any of the races described from the islands off the west coast of Sumatra. Obviously introduced as a cage bird.

18. **Munia oryzivora** (Linn.)

An immature ♂. Obviously introduced as a cage bird.

19. **Anthus richardi malayensis** Eyton

Wing, ♂ 86.

20. **Zosterops natalis** Lister

Wings, ♂ 62, ♀ 59, 60, 61 (1923).

♂ 59, 60, 60, ♀ 57.5, 59, 59, 60, 60, 61, 61. (1904).

The specimens collected by Hanitsch in 1904 answer much better to Lister's original description than do those taken in 1923 which are much whiter below with only the faintest of buff wash on the flanks. Possibly they are young birds. Neither of the coloured figures given of this species are good although that in "A Monograph of Christmas Island" (1900) pl. VI. is a great improvement on pl. XXVII. P. Z. S. 1888.

Bird Notes.

By F. N. Chasen.

(Records of the Raffles Museum, No. 5.)

(A) On the occurrence of certain alien birds in Singapore.

A steady stream of live birds from the islands of the "Malay" Archipelago, India, China and Australia finds its way into the bird-shops of the Singapore bazaars. The greater proportion of this influx consists of doves, parrots and weaver-finches (*Munia*) but occasionally species more interesting to the local ornithologist are to be found.

Accidental escapes, coupled with the action of certain sections of Asiatics who deliberately liberate cage-birds owing to a religious belief, are responsible for the addition of several birds to the list of those known from the Malay Peninsula. Thus *Turdus naumanni* Temm. recorded by Hume ("Stray Feathers" VIII, p. 156, 1879) seems doubtful and with this can be bracketed Kelham's record of *T. ruficollis* Pall. (Journ. Str. Br. R. A. S. No. 11, p. 9, 1883). Neither of these birds are otherwise known from the Malay Peninsula or Archipelago.

That Hume appreciated the possibility of certain introduced species becoming established in Singapore is evident from his note regarding *Estrelda* (*Amandava*) *amandava* (L.) and *A. a. flavidiventris* Wallace:—"We procured specimens of both these species in a thoroughly wild state on Singapore Island, but, as in the case of *Oryzivora leucotis,* they appear to occur nowhere else in the Peninsula, and plentiful as they may now be, in a wild state on that Island, we believe that all three species have been introduced there." (loc. cit. supra, IX, p. 118, 1880).

It is doubtful whether these words would have been written on the strength of one or two specimens obtained locally and it seems reasonable to conclude that about 1880 these two munias were well established. Neither form, however, is now found in Singapore, except in the bird shops, but several cases analogous to that of *Amandava* can be cited.

Mr. C. J. Wilson has recently recorded (The Singapore Naturalist," No. 4, p. 86, 1924) the presence of *Molpastes a. aurigaster* (Vieill.) of Sumatra and Java, in the Government House Domain, Singapore, and to this record the writer can add a new locality on the island (Sepoy Lines, Dec. 1923). In the field the conspicuously light rump and larger size distinguish *aurigaster* from the common *Pycnonotus goiaver analis* (Horsf.).

Otocompsa jocosa erythrotis (Bp.) [*Otocompsa emeria* auctt.] of Burma, the northern part of the Malay Peninsula, Sumatra and Java has likewise turned up in Singapore several times during the last three years and although at one time birds could usually be seen in one particular part of the island, the species is so commonly imported as a cage bird that no importance must be attached to the occurrences.

Munia oryzivora (L.) is now one of the commonest birds in Singapore. It is found in most parts of the island, has spread to the neighbouring islets and also occurs in the Rhio Archipelago where (Pulau Bulan), a specimen was shot from a flock in April 1924 and bore unmistakeable signs of having been in captivity.

In July 1920 an immature ♀ example of *Graculipica melanoptera tricolor* (Horsf.) of East Java was obtained at Katong in Singapore. The fact that the collector, Mr. P. de Fontaine, stated that he killed the specimen from a flock of similar birds makes an otherwise worthless occurrence worthy of record.

Here it may be remarked that the two specimens on which the Singapore records of *Sturnia m. malabarica* (Gmel.) and *S. m. nemoricola* Jerd. are founded (*vide* Hanitsch, Annual Report on the Raffles Lib. and Mus. 1902, p. 7, *et* Robinson, A Handlist of the Birds of the Malay Peninsula, p. 18, 1910) have been wrongly identified and prove on examination to be immature examples of *Sturnia turdiformes* (Wagl.) [*S. sinensis* auctt.]

Of considerably more importance than any of the above records is the discovery of *Uroloncha leucogastroides* (Horsf. and Moore) in Singapore. This species, hitherto only known from Sumatra and Java, but very closely allied to, if not a race of, *Uroloncha leucogaster* (Blyth) of the Malay Peninsula and Sumatra, is now found in Singapore in small flocks consisting of six or more birds. In *M. leucogastroides* the line of demarcation between the black throat and white breast is straight; in *leucogastra* it is wedge-shaped. Within the last two years they have been seen in the gardens of Fort Canning, in the Cathedral grounds, the Botanic Gardens, the Museum compound and at various places in the Tanglin district. Specimens in the Raffles Museum were obtained in the Botanic Gardens in March 1923. A bird in immature plumage was obtained in November of the same year and several nests brought in from Bukit Timah are believed to be of the same species. It will be interesting to see whether this bird succeeds in maintaining its hold on the newly acquired territory. Like *Amandava* it may disappear.

(B) Delichon urbica dasypus (Bp.) in the Malay Peninsula.

A specimen of this martin which breeds in Japan and has been recorded as a migrant from Borneo and from a lighthouse in the middle of the Straits of Malacca (Journ. F. M. S. Mus. Vol. X, p. 253, 1922), was obtained near the summit of Gunong Angsi in Negri Sembilan (2000′) on 29th November 1923. This species has not hitherto been recorded from the mainland of the Malay Peninsula. Measurements (in the flesh):—L. 126, W. 106, Tail 42, Beak from gape 14, Tarsus 11.

(C) The local status of Oceanodroma m. monorhis (Swinhoe).

No less than nine specimens of this petrel have been examined from the Horsburgh Lighthouse (33 miles east of Singapore Island), since the publication of the short note in a previous number of this Journal (Vol. I. p. 255, 1923). Three obtained on 10th May 1923 were brought to Singapore alive and another six which struck the light at the beginning of May 1924 were formolized by the Malay lighthouse keeper. Another skin, in bad condition and without a label, has been found among some duplicates in the Raffles Museum. There is reason to believe that it was obtained in the Straits of Malacca, somewhere between Penang and Singapore, a good many years ago.

The table below includes all the specimens of this petrel in the Museum collection.

The first primary may be equal to or considerably shorter than the third.

Sex	Length	Wing	Tail from base of feathers	Tarsus	Middle toe and nail	Culmen	Beak from gape	Locality.
♂	189	150	72	24	24	14	22	Horsburgh Lighthouse, May 1923
..	..	156	78	23	24	14	..	„ „ May 1924
..	..	158	75	24	25	15	..	Locality ?
..	..	159	79	23	25	14	..	Horsburgh Lighthouse, May 1924
♂	197	159	79	24	25	13.5	23	„ „ May 1923
..	..	161	80	23	26	14	..	„ „ May 1924
..	..	161	79	23	24	14	..	„ „ „ „
..	..	163	77	23	25	15	..	„ „ „ „
..	..	164	79	23	25	14	..	„ „ „ „
..	205	165	82	23.5	24.5	14	..	„ „ Oct. 1921
♀	202	167	79	24	25	15	24	„ „ May 1923
♀	..	..	81	23	23.5	14	..	near S'pore, May 1913

The Forms of Criniger gularis and C. gutteralis.

By C. Boden-Kloss.

(Records of the Raffles Museum, No. 6.)

The white-throated bulbuls of the genus *Criniger* inhabiting Malaysia and Indo-China seem to fall into two species:—*gularis* Horsf. and *gutteralis* Bp.

I tentatively arrange them as follows (the distribution given is not in all cases complete):—

Species 1. **Criniger gularis** (Horsf.)

Subspecies:—

C. gularis gularis, (Horsf.)	West Java
„ „ balicus, Stresemann	East Java and Bali
„ „ henrici, Oust.	Tonkin and Annam, N. Siam
„ „ pallida, Swinh.	Hainan
„ „ grandis, Baker	Yunnan; ? N. E. Shan States
„ „ flaveolus, (Gould)	Assam to Gharwal
„ „ griseiceps, Hume	N. Pegu to Rangoon
„ „ burmanicus, Oates	Karennee to Mt. Muleyit
„ „ tephrogenys, (J. & S.)	Malay Peninsula, Sumatra (lowlands)
„ „ sumatranus, W. Rams.	Sumatra (mountains)
„ „ frater, Sharpe	Palawan, Balabac, Calamaines Islands

Species 2. **Criniger gutturalis** (Bp.)

Subspecies:—

C. gutturalis ochraceus, Moore	Central and North Malay Peninsula, N. and N. E. Siam, Cambodia, Cochin China, Tenasserim north to Moulmein
„ „ sacculatus, Robinson	South Malay Peninsula (*i.e.* Malay States)
„ „ gutturalis (Bp.)	Borneo (lowland & submontane)
„ „ ruficrissus, Sharpe	Borneo (mountains).

I have not seen *pallida, grandis, griseiceps* and *frater.*

On this arrangement only in the Malay Peninsula and in Indo-China are both species yet known to be represented.

MISCELLANEOUS.

Chinese Divining Blocks and the "Pat Kwa" or eight-sided diagram with text figures.

Divining blocks are generally made of a bamboo root split in two, each piece resembling a large kidney in shape, one side convex, the other flat. In size they are about 5″ long and 3½″ wide, and a pair will be found in every temple. They are placed on the altar where they are supposed to be imbued with the power of the deity. (Fig. I).

Having offered up a prayer, and made due obeisance the (male or female) worshipper lights a handful of joss sticks which are placed in the censer on the altar; then taking a divining block in each hand the worshipper passes them through the smoke of the incense. Standing close to the altar, the worshipper asks his question and then throws both the blocks in the air. Their position on the ground will determine the answer. Questions should be put in such a manner as to obtain a definite answer, 'Yes' or 'No'.

Both blocks falling convex side up is known as "Yin" 陰; both falling flat side up is known as "Yang" 陽. Both of these positions denote a negative answer. The affirmative is denoted by the Yin and Yang, that is one concave side up and one flat side up:—Yin and Yang denote the male and female element in nature, the perfect combination.

The mystic diagram Yin and Yang is very commonly used in art. It is often seen in the centre of the Pat Kwa 八 卦 or the eight sided diagram. (Fig. II). The "Pat Kwa" is very common outside houses over doors or windows (Fig. II). It is looked on as a potent charm against evil. It is to be found on the geomancer's compass and in all forms of witchcraft. It is embroidered on the robes of priests. Children wear it as a charm wrought in silver or gold, or printed on paper or cloth. Legends state that the Pat Kwa was revealed to Fuh Hi in B. C. 2850 on the back of a tortoise and it is supposed by some to be the origin of writing and mathematics. Throughout the ages it has been looked on by the wise men of China as the outcome of profoundest thought, and thus it has given the geomancers ample means to derive wise conclusions as to the selection of sites for houses, temples and graves.

On the compass the "Pat Kwa" is shown as follows.

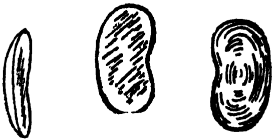


Fig. 1
Divining Blocks.

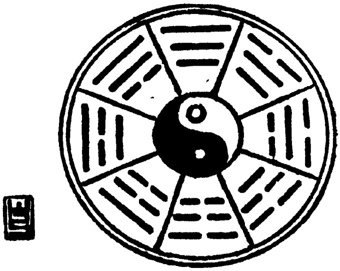
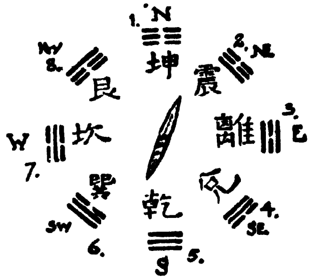


Fig 2
The "Pat Kwa" as usually seen over house doors.

The "Pat Kwa" is divided into eight sections, each section containing three lines so arranged that no two sections are the same. The basis of these lines are Yin and Yang, the negative and positive sides of life. *Yang* is denoted by a single line—, ○, and literally means 'the sun, heaven, light, vigour, the male.' *Yin* is denoted by a divided straight line — —, ●, and means 'the moon, the earth, darkness, the female.' These two lines in various positions, in groups of three, make up the "Pat Kwa," the centre of which is the Yin and Yang symbol (Fig. II and Fig. III). The Pat Kwa also answers to the eight points of the compass which was invented by the Chinese, and again it refers to the four seasons of the year.



1. Kin 乾 (5) South, corresponds to strength, a father.
2. Kwan 坤 (1) North, corresponds to peace, Mother Earth.
3. Chan 震 (2) North East, indicates motion, the East, the origin of knowledge.
4. Sun 巽 (6) South West, indicates penetration, the eldest daughter.
5. Ham 坎 (7) West, signifies danger, the west, the moon.
6. Lei 離 (3) East, signifies brightness, tortoises.
7. Kan 艮 (8) North West, means perverse, gates.
8. Tüi 兌 (4) South East, means pleasure, the tongue, a concubine.

W. G. STIRLING.

Fire-Walking at Ampang, Selangor.

Half a mile beyond the village of Ampang in the midst of mining fields, six miles from Kuala Lumpur is a small Chinese temple in nowise remarkable. Here, on the ninth day of the ninth moon by the lunar Chinese calendar, which corresponded to the 18th October 1923 in the Julian, a curious ceremony is annually held. I had lived in Kuala Lumpur eighteen years and never seen it. I had always meant to go but whenever I thought of it the ninth moon had been far ahead or only recently passed. All who take part and nearly all who look on are Chinese coolies, Hokkiens who come from Fukien Province in Southern China. Some weeks previously large attap sheds are constructed around and in front of the temple, and stalls spring up everywhere for the sale of food, drink, candles, crackers, joss-sticks and other aids to devotion.

Those taking part are secluded for some weeks in the temple precincts there undergoing a course of prayers and preparation. A vegetarian diet is absolutely necessary.

On the morning of the ninth day of the ninth moon at eleven o'clock the square before the temple was already inconveniently full, the greater part of it being taken up by an empty roped-in circle. To the north-west there was a pile of ashes five feet high where firing of crackers had taken place continuously for days previously to drive away evil spirits from the narrow entrance. In front of the temple facing west was a large temporary shrine bright with candles, flowers in vases, burning joss-sticks, and gilt images. Opposite on the other side of the ring were two pavilions, one crowded with women and children, the other filled with Chinese musicians who played a music that has no harmony but which, I am assured, is delightful to Chinese ears and has a technique as intricate as ours. On the south side of the shrine but within the ring there was a large mast painted red with a green faded bamboo hanging across it like a spar. This was lowered, the leaves touched with fire and sprinkled with water, and again hoisted up. In the midst of the ring, which was some fifty or sixty feet in diameter, was a pile of charcoal, which was gradually increased till it was about twelve feet long and eighteen inches high. Large squares of paper printed with gold and red devices were thrown on to it till the charcoal was covered. A middle-aged hierophant dressed in black sprinkled the pyre with a few drops of liquid (apparently water) using as aspergillum a small twig with several dark green leaves. He shook in his left hand a bell and a dagger whilst doing this, and muttered invocations. The pyre was then lit on the southern side. Various assistants then threw on more paper and scattered paper money stirring the mass with poles, and fanning it with pieces of matting till the charcoal began to glow. As soon as the paper was nearly consumed more would be thrown on, till at last the whole pile was covered with white ashes, and sent out a great glow so that the figures on the other side of the ring appeared to shimmer in the heat. By this time the crowd was densely packed, the branches of the trees that shade the temple were covered with people, and looking behind me, I could see, above the background of booths, a high bank of spoil from a neighbouring mine blazing in the sun and crowded with hundreds of spectators and dozens of paper umbrellas. But those who had umbrellas in the square were made to lower them by the grey-moustached master of ceremonies and his assistants, who all wore yellow threads, as did some of the crowd.

The candidates for the ordeal had gradually trickled through the throng round the shrine, dressed in white coats and white pants, mostly bare legged and all bare footed, with white handkerchiefs round their heads. They all carried something which looked like a rolled-up flag and all also had small bundles tied up in yellow cloth. An empty sedan chair flag-decorated and gilded was carried around by some of them on their shoulders swinging from side to side: this we were told contained the god. Kow Wong Yeh by name, that is Respected Ninth King, but it seemed to be quite empty.

Then two stands were similarly carried round, each supporting two Chinese girls gorgeously apparelled standing on pedestals. Then a fanatic, naked to the waist, with an axe in one hand and a dagger in the other, leaped and shouted and cut himself on the back, long scratches which bled but not profusely. He refreshed himself every few steps with tea from the spout of a tea-pot held by a friend.

At last noon struck and the way into the ring was cleared with much shouting on the north-west side. Two men appeared carrying spears, with black banners decorated in red with the eight-sided sign of the Pa-kwa, which symbol in Chinese thought expresses Heaven and Earth, wind and thunder, fire and water, the sexes, "the elements of all metaphysical knowledge" and much else. With these they barred the passage, whilst the music played, cymbals crashed and a great drum boomed from near the red-painted mast. The hierophant again appeared with bell and dagger. With the latter, he traced in the earth on the north-west and south-east sides of the pyre what apparently was a double Greek cross. A great silence fell, one could almost hear the pigs grunting in the squatters' gardens near by. *Ubi Seres ibi sus.* The sun, the crowd, the fire, made the heat almost unbearable and sweat poured down the circle of expectant faces. Suddenly handfuls of paddy (husked rice) were thrown on to the glowing heap. A great crackling arose, dense smoke, and here and there a little yellow flame. One after the other the candidates ran across from north-west to south-east. Most took four steps, that is two with each foot, but some cleared it in three. The sedan chair and the two stands, the latter no longer supporting the girls, and two large red polygonal objects were carried over at a slower pace. As the last candidate passed the rope barrier was lowered. I walked up to the heap of charcoal; it was still very hot. There were about one hundred candidates, none seemed burnt or in any way hurt; some walked away at once in the departing crowd.

We spoke to the ring-master. He was evidently very pleased that everything had gone off well and, beaming, told us that all was over, that each man who had walked through the fire would be well for the next year, and that no woman was allowed to compete.

DAVID FREEMAN.

The Gypsies of Sarawak. (Punans.)

To find these interesting and delightful people you must desert the highways and even byeways of Sarawak and delve into the heart of jungle land, the haunt of the bear and barking deer, the wild cat and argus pheasant; you must travel up and down many little streams, the beginning perhaps of mighty rivers, whilst overhead you may hear the sound of the great Hornbill as he flies from his feeding ground back to the giant trees that serve for his home. All the time you will have the feeling that unseen eyes are watching you and so indeed they may be—for Punans are timid people and greatly fear the roving Sea Dyak and it is said they have the art of camouflage in its most perfect form. From behind trees motionless people will watch your progress and later will astonish you, in their encampment, by informing you that they saw you pass such and such a place the same morning whilst you yourself and your followers have seen nothing. My guide, on the occasion I have in mind, was a Klabit who was a friend of many Punans and he said that they knew his voice and were not afraid of him. We had walked a whole day on the chance of meeting some of these people, and had indeed passed many of their former camping places discernible by the old sago trees that had been worked over the small streams, and occasionally by a rotting leaf shelter that had once been their home for a time. We made our camp and spent a night on one of these small mountain streams and the next morning discovered that the unseen eye had examined us at night and timidly passed on, for there on the sandlike banks of the stream were the newly made footprints of a man. My Klabit friend sent up his rallying call but no response was forthcoming. We walked on up and over the sources of small streams and down the source of the streams the other side, not once but many times, and towards evening my Klabit friend suddenly said "I believe there are Punans near here." He darted through a side track into the jungle and soon called for me to come along. There perhaps 25 yards from the stream were five mushroom like shelters about 10 yards from each other, the home of the gypsy. The headman, a kindly looking man of startling whiteness who wore a small beard, came down and led me to his house which would barely hold three people. It was built about 15 feet from the ground and of very light material and about 5 feet across. He told me in simple language that the white man had given his people life and so they were delighted to receive a white man in their home. Our medium of conversation was Klabit with which we both had a nodding acquaintance.

Slowly the other members of his encampment lost their shyness and the women and children came round and stood either on the stairs, which was an ordinary pole, or round about below.

The women were wearing small slit skirts of red material given them by Kayans and like the men were of a peculiar white colouring. The men were stockily built and are great hunters as they depend entirely on their blowpipes with their poisoned darts for their existence. The women make sago from the wild trees and collect jungle fruits, whilst the men go hunting; and should there be a scarcity of game, dry sago is the only food they rely on. There seemed to be no old people and this I have found with other Punans and Ukits. Chest troubles seem to be the enemy that takes them to other hunting grounds and I should say they are fast dying out as a race. The Klabit say that until quite recently when their chief came into this district the Punans wore no clothing *i.e.* about 40 years ago.

The women wear fibre rings as leg supports, the same as men in other tribes, and often accompany their men folk on their hunts. They seem to have no set ideas about religion but believe big trees, large stones, rivers and mountains are possessed of spirits. There are also certain pigs that are said to have a spirit. They have a few charms, amongst which is a certain wood that attracts game to be blowpiped. When anyone dies they simply move on, leaving him or her in the shelter where they lie.

The Muruts say that the first Punans were two Muruts who were too lazy to work in the sun or the padi fields and ran away into the jungle. The leader told me that his people had roamed in this same district between two large rivers for many years, certainly ever since his grandfather's time. They move as the wild sago gets worked out, seeking fresh hunting lands. A people of the jungle living very much like animals, hunting and with the fear of the hunted in their hearts. One leaves their primitive encampment with the thought that here is a link with man's origin, but realizing what tremendous progress man has made since our forefathers too lived the life of the hunter, and with pity in one's heart for these simple people who are slowly, like the wild beast, being exterminated by the ravages of man and disease.

In Sarawak, these people may be found between the Apoh and Tutoh, in the Ulu Rejang, in the Bintulu District, and in the jungle near Bukit Batu by way of the Mujong, amongst other places. In the main their language I believe is the same. I have had opportunity of comparing two only of these districts and they are almost identical.

E. L. ANDREINI.

Some Land-Dayak Words.

Collected at Tabekang, in the Sadong district of Sarawak.

Aba	do not, let not.
Adug	chest.
Adŭh	is, are, has, have.
Aji	go.
Aku	I, me.
Ama	mat.
Ami	we, us.
Amu	you.
Amú	long (of distance).
Ana	child.
Andu	day.
Anga'	thirsty.
Angking	finger.
Ani	which, what.
Anŭg	fine, delicate.
Anyan	steps, ladder.
Apui	fire.
Ttŭh	end, extremity.
Awa	liver, seat of emotions.

Ba'a	head.
Badŭr	dry.
Bahas	big, large.
Batan	throw away.
Batuh	stone, rock.
Bauh	new.
Bayu	not yet.
Bĕbi	cold.
Bĕdapud	to meet.
Bĕdinga	can, could, able.
Bĕ'ek	bad, wicked.
Bĕlangi	to dance.
Bĕngam	deaf.
Bĕras	rice.
Bibih	lip.
Bisah	wet.
Bisaw	satisfied.
Bina	very, exceedingly.
Bubong	hill.
Bŭbŭr	mouth.
Bŭkŭn	it is not, there is not, no.
Bŭkor	knife, chopper.
Buntan	coconut.
Buran	moon.
Buru	hair, feathers.
Bŭtŭh	eye.
Bŭ'ŭs	sleep.

Da'ih	forehead.
Dari	male.
Darud	mountain.
Datu	high.
Dawan	to dry in the sun.
Dawŭr	leaf.
Dayong	female.
Dayŭr	land, shore.
Dĕmbar	old (of things), long (of time).
Dĕsĕpa	outside.
Dingan	companion.
Dŭdŭt	soft.
Duhdĕni	where.
Du'ŭh	two.

Ĕga	refuse, will not.
Ĕndi	one.
Ĕnggam	forearm.
Ĕntayan	footpath of logs, small bridge.
Ĕnta'uh	right hand side.
Ĕntian	remember.

Gaga	beard.
Gamor	bathe.
Gapi	whither.
Gĕlang	wristlet.
Gĕnan	name.
Gĕntu	strong, energy.
Gĕnus	moustache.
Gĕra	coarse, rough.
Gĕru	upper arm.

Hong	much, many.

Ichuk	small, little.
Iju	seven.
Ijŭr	just now, a short time ago.
Inia	man, mankind.
Ira	wish, desire, want, like.
Irau	leaf 'atap.'
Iti	this.
Iŭh	yes.

Jagu	morning.
Jaju	behind.
Jamu	short skirt worn by women.
Jarat	walk, proceed.
Jĕpeh	soft.
Jepŭh	teeth.
Jĕteh	tongue.
Jukut	overgrown, entangled.

Kabus	dead.
Kadohma	soon.
Kai	no, not.
Kamut	mistake.
Kasung	dog.
Kawi	shoulder.
Kayu	wood, things.
Kĕduk	short.
Kĕja	foot.
Kĕna'	correct.
Kĕping	ear.
Kĕbai	do, make.
Kimpang	lame.
Kinya	youth.
Kiran	arrange, set in order.
Kŏkŏ	neck.
Kokot	burnt.
Kŏngŏ	throat.
Kopar	thick.
Kreja	work.
Krĕshik	gravel, sand.
Kudu	how many.
Kumani	how, in what manner.
Kumpuan	ever.
Kŭnŭh kŭnŭh	in haste, with all speed.

Lagi	again, more.
Lambat	slow.
Lapang	visible.
Lĕbeh	more.
Lĕdeh	thin.
Luah	emerge.
Lawar	broad.

Ma'an	eat, food.
Mahi	eight.
Mahid	left hand side.
Malang	fool.
Malur	old farming land, young jungle.
Maman	go down river.
Mamoh	bathe.
Manok	bird.
Maring	return.
Mĕna'	empty.
Mĕnab or mĕnam	sick.
Mĕnŭh	arrive.
Mĕsuopi	whence.
Miasu	eyebrow.
Mijaw	stand up.
Mudek	go up river.
Mudip	alive.

Muhun	descend.
Murut	enter.
Mohun	Sa-mohun = ten. Sa-mohun ĕndi = eleven, and so on. For twenty, vide 'Puru.'

Na'i	stomach.
Nanchak	order, command.
Nano	cook.
Narang andu	midday.
Narid	pull.
Nawa	hunt.
Nĕngkat	pierce.
Ngadup	self.
Ngaju	go to (Malay 'aga').
Ngarim	night.
Ngĕnum	six.
Ngudut	Bamboo pipe for tobacco (Malay 'serobok'), to smoke a pipe,
Ngulu	to sit.
Ngundah	make.
Niab	count, calculate.
Nyab	is not, are not.
Nyawa	daylight.
Nyegur	door.
Nyĕndun-andu nyĕndun	yesterday.
Nyĕndun nyamin	day before yesterday.
Nyuhup	drink.
Nyumah	climb.
Nyungkah	request.
Nyungkun	keep, retain.

Obon	all.
Obor	finished, complete.
Odŏg	strike, incur.

Pa'agh	deer.
Padi	unhusked rice.
Pagi	to-morrow.
Pagi sa'a	day after to-morrow.
Pagi sani	day after day after to-morrow.
Pagoh	good.
Pantas	quick, fast.
Paya	possible.
Payam	slowly, carefully.
Payu	deer.
Pĕkat	come to an agreement.
Pĕnga	pig.
Pĕtŭh	evening, dark.
Pĕnoh	full.

Prĕksa	examine.
Pri'i	nine.
Puan	know.
Pŭmpi	cheek.
Pŭpah	palm of hand or foot.
Puru	a group of ten (Malay 'puloh'), but only used for numbers twenty and over.

Ra'ang	chin.
Ramin	house.
Ratus	hundred.
Riang	hard.
Rimuh	five.
Robang	hole.

Sagŭr	low.
Sahun	tobacco.
Sakar	narrow.
Sarat	leg ornament, made of brass wire and worn on calf of leg.
Sarin	similar to 'sarat' but worn on arms.
Sĕbab	because, reason.
Sĕburu	hungry.
Sĕdur or Sĕdeh	enough.
Sĕna	speak.
Sĕni	afterwards.
Sĕnindi	collect, bring together.
Shinŭg	near.
Shiru	hot.
Sijaw	up river.
Sikuh	elbow.
Silap	silver dollar.
Singkuhun	pole, walking stick.
Siok	domestic fowl.
Sisu	breast.
Suku	quarter.
Su'uh	obey.

Taban	bring.
Tahup	loin cloth.
Tai	hang.
Tagŭh	hold.
Tanah	earth, land.
Tarip ngarim	midnight.
Taroh	three.
Tarun	jungle.
Tawan	swamp.
Tayŭh	before.
Tĕbŭk	see.
Tĕda	middle, half.
Tĕkat	lift, carry away.

Tembang	mad.
Tengan	hand.
Tengun	tree.
Tiap	tell, inform.
Tinang	wear, use.
Tiyŭh	that, those.
Tuang	pour.
Tumbit	fetch.
Tumi	necklace.
Tumu	push.
Tu'u	old, aged.
Tu'uh	careless.
Udu	grass.
Ui	rotan.
Ujong	prevaricate, untruth.
Umboh	was, has been (Malay 'sudah').
Umpat	four.
Umun	water.
Undu	nostril.
Ungut	young.
Unuh	nose.
Uri	medicine.
Wah	inside.
Wongmeni	when.

G. BERESFORD STOOKE.

Malay Equivalents for Military Terms.

The following suggested Malay equivalents for English terms denoting military rank may be of interest. Captain H. M. Said, S.M.J., of the Johore Forces and Private Secretary to His Highness the Sultan of Johore has been good enough to make amendments or alterations.

Field Marshal	Dato' Panglima Prang.
General	Panglima Besar.
Lieutenant-General	Panglima Kanan.
Major-General	Panglima Kiri.
Brigadier-General	Panglima Anchar.
Colonel	Panglima.
Lieutenant-Colonel	Panglima Kechik.
Major	Hulubalang Besar.
Captain	Hulubalang.
Lieutenant	Pahlawan.
Second Lieutenant	Pahlawan Muda.
Sergeant-Major	Pendikar Besar.
Sergeant	Pendikar.
Corporal	Dekar.

Lance Corporal	Alang Dekar.
Private	Gagah.
Commander-in-Chief	Imam Prang.
Colonel-in-Chief	Panglima Atas.
Staff Officer	Pegawai Dalam.
Warrant Officer	Perwira.
Quarter Master	Juru Pelabur.
A. D. C.	Apit Limpang.
Land Forces	Tantra Darat.
Sea Forces	Tantra Laut.
Army Corps	Bala Tantra.
Troops	Ketumbakan tantra.
Battalion	Ketumbakan Agong.
Regiment	Ketumbakan.
Company	Pesokan.
Wing	Sayap.
Platoon	Bahagian.
Section	Sa-perbahagian.
Standard	Panji-panji.
Colours	Tonggol.

N. M. HASHIM, CAPT.

Malayan Spiritual Sidelights.

Everyone recognises the feeling when traversing a new route to a given destination: the distance seems to be longer than it actually is, the time to drag; and of course the explanation is that not knowing the destination except by name, one is apt to expect every minute to arrive at the place—hence the idea of lengthiness. But on the return journey, when one recognises every turn or landmark on the route, one seems to get back to the starting point much sooner than one had anticipated. The Malay puts down that feeling to another cause: he says on the outward journey the spirit of the traveller must address and make salutations to the spirit of every tree and stone along the route, who are, of course, strangers to him, and this hampers his progress, giving that sense of extra lengthiness: but on the return journey all these spirits are like old acquaintances so that salutations between them can be dispensed with.

N. M. HASHIM, CAPT.

A Pig-eating Python.

Whilst travelling around the Ulu Rejang, some Dayaks told me the following story about a python, which from their account must have been about 22 feet long.

We had returned from hunting and were commencing to cook our evening meal when our attention was attracted to a pig which emerged from the jungle on the opposite side of the river and unconcernedly came down to the water to drink, without observing us.

Our chief was contemplating slaughtering the beast when we were surprised to see a python of exceptionally large dimensions, slither from the undergrowth in the track of the pig. The python drawing near to the pig suddenly made a charge, biting the neck of the beast then quickly erected its body in coils on each side of animal and slowly brought pressure to bear by forcing the coils on the one side against the coils on the other—(the pig being in between).

After a short interval, the pig which had been struggling violently appeared incapacitated, but the python waited some minutes. The snake then proceeded to assure itself as to the fighting capacity of the pig by jabbing with its tongue at the eyes, ears, mouth, nostrils and other delicate portions of its body, but being satisfied that there was no movement, released its hold.

The python then commenced to prepare its meal for convenient digestion by covering it evenly with its saliva, turning the pig over to prepare the other side—then having completed this performance opened its jaws to an extraordinary extent and to our amazement swallowed the whole animal, in what appeared to be about five gulps.

The python now being surfeited and somnolent, we slaughtered it, cut it open and obtained a large pig for our supper having been saved the tiring necessity of hunting.

G. T. MacBryan.

Notes on the Internal Anatomy of Liphistius batuensis, Abr.

[As stated in a former paper[1], I was able to provide my friend Mr. B. H. Buxton with a number of specimens of the Batu Caves spider *Liphistius batuensis* Abr. for the purpose of dissection and the results of his investigations (which are mostly of a negative character, but none the less valuable on that account) are contained in the following notes with which he has supplied me together with his kind permission to publish them as I might think fit. I am very much indebted to Mr. Buxton for this permission and gratefully avail myself of it.—H. C. Abraham].

Four specimens of *Liphistius batuensis* for sectioning were received in 1923 from Mr. H. C. Abraham to whom my best thanks are due.

I hoped to find some evidence that *Liphistius* is more primitive than the Theraphosid spiders, but failed to do so.

1. *Coxal Glands*—The Therasophid spiders have two coxal glands on each side of the thorax, each with its terminal saccule

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1. Journal Malayan Branch, R. A. S. 1, 1923, p. 14.

and a collecting tubule leading into the labyrinth, a long coiled tube lined with striated excretory epithelium, at the distal end of which is an exit tubule with an outlet to the exterior.

The anterior of these two glands is in segment III, with an outlet just behind the coxa of the third appendage: and the posterior gland is in segment V, it's outlet being behind the fifth appendage.

The labyrinth tubes of the two glands run from segment III to the middle of segment VI, interlacing and coiling over each other, so that in sections it is impossible to determine tc which of the two systems the tubules actually belong.

In the Araneae Verae the coxal gland of segment V has been lost; that in segment III alone remaining. The coxal glands,·of *Liphistius* resemble those of the Theraphosid spiders in every particular, and are not in any respect more primitive.

2. *Ganglia*—With regard to the ganglia of the nervous system, in all adult and immature spiders there are five ganglia, belonging to the abdominal region, which are missing, but in a larval specimen of a Theraphosid (*Chilobrachys* sp. from Sumatra) I found five transient ganglia on either side of the abdomen. These ganglia can be observed just after hatching out from the egg, but in a week, and long before the moult from larval to immature, they disappear.

I hoped to find that these transient ganglia were more permanent in *Liphistius*, but in none of the specimens examined (2 adult and 2 immature) is there any trace of them. It is possible that they may persist longer in the larval *Liphistius* than in the larval Theraphosid, but there is so far no evidence that this is the case.

3. *Other Structures*—Examination of other organs and structures in *Liphistius* affords no indication that it is anatomically more primitive than the Theraphosid spiders. *Liphistius* appears to be much more nearly allied to the Theraphosids than are the latter to the Araneae Verae.

B. H. Buxton.

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Chinese Place Names in Johore.

By J. V. COWGILL.

This list has been compiled in the hope that it may be of use to all those, whether government servants or not, whose business brings them into contact with the Chinese language, written or spoken. No such list has, so far as I can ascertain, been previously attempted for Johore.

The task of compiling a practical list is complicated because the Chinese have their own peculiar system of place nomenclature, a system that takes no note of prominent geographical features, and that finds names for areas, in which Chinese have settled but of which there is no mention on published maps. I know of no Chinese name, for instance, for Gunong Ledang (Mount Ophir) or Gunong Blumut, or Bukit Wak-Wak, while towns and villages of considerable local importance are named after some Chinese kongsi or plantation or mine in the neighbourhood. The name thus given survives over the whole area, some times long after the original kongsi has disappeared, and the orientation of the neighbourhood has been altered to Western minds by roads and railways.

In Johore nearly all well-established place-names are taken from the old-time gambier and pepper plantations known as *kangka* (港腳—literally—" river foot"). The *kangka,* which was at any rate within recent years peculiar to Johore, consisted of a collection of families, usually of the same surname, living and working as the serfs of a headman or *Kang Chu* (港主) who was officially recognized by government and given a free hand in dealing with everyone and everything within his area. He had the opium farm and the gaming farm; he held exclusive rights of pawnbroking, selling liquor, slaughtering pigs and selling pork; he paid rent or taxes for the whole of his area, and, in fact, took the responsibility of the administration of the territory worked from his *kangka* off the shoulders of government. The individual members of his *kangka* looked to no higher authority than his, and were often no doubt not even aware of one.

This system, which had much to commend it as a method of controlling Chinese peasant folk, was abolished in 1911, but the communities still exist in many places, and the names survive: it is hardly an exaggeration to state that there is no area in South Johore, *i.e.* in the Districts of Johore Baharu, Kukub and Kota Tinggi, which cannot be described by reference to the nearest *kangka.* This explains, for instance, why a certain not very exactly defined neighbourhood about the 25th mile on the Johore Baharu-

Batu Pahat road is known as Pau Nyi Sing (保義成), which is properly the name of a Chinese settlement some miles away across the railway on the Johore River.

Many of these *kangka* names are defunct or moribund; and however the student of Chinese may deplore it, utility demands that a list of Chinese place names should contain a large number of those 'dog-Chinese' combinations of which our railway stations are the principal propagators. These forms are merely efforts to reproduce Malay sounds in Chinese characters. The combinations thus produced may and do differ with each individual writer. Sometimes the form has become standardized, but generally not. In Segamat, for instance, the Railway Station, the Post Office and the Chinese School all use different forms, and these all differ again from a fourth form which occurred in a letter written by an educated Chinese, that reached me on the very day on which I made the above discovery.

It is too much to hope that the publication of a list such as this will serve to standardize the forms in use; my excuse for introducing such barbarous combinations as—for instance—亞比亞比 (Api-Api) is that such forms are used by the writers of letters and petitions who as a rule are far removed from being Chinese scholars. I have resorted to them, however, only where no pure Chinese forms exist, and where the place is of such local importance that it could not be excluded. The demands of utility must also be my excuse for introducing character-forms not to be found in any standard Chinese dictionary: I have used these reluctantly and as sparingly as possible: students of Chinese will I hope realize my utilitarian object and forgive me.

Some attempt has been made to indicate roughly the geographical situation within the state of the various places mentioned in my list. This has been done, firstly by grouping the names under administrative districts, and secondly within the districts, by a further grouping together of places which lie along, or are accessible by, certain of the principal rivers.

Teochiew has been chosen as the staple language for the romanization of the Chinese names, because, although the 1921 census shews that the predominance of Teochiews over other Chinese races in Johore is not so great as it was, the Teochiews are, in South Johore at any rate, still more numerous than any other Chinese; while—a still more important point—their language is a sort of *lingua franca* among Chinese over a great part of the State. Exceptions have been made to this rule in the case of Mersing and Muar districts, where this preponderance of Teochiew does not exist. In Muar district the names have been taken mainly from Hokkien sources, and in Mersing mainly from Cantonese sources, and the romanization is therefore given in those two languages respectively.

Where versions other than Teochiew are given, these are distinguished by an initial letter, (H) for Hokkien (K) for Hakka (C) for Cantonese.

For valuable assistance in the compilation of this list I am much indebted to the Assistant Advisers of Batu Pahat, Mersing and Segamat Districts, to the Chief Police Officer Muar, to Messrs. Khing Soo Kong and Seah Sau Shan; also to Ungku Abdul Aziz bin Abdul Majid D.K. for suggestions with regard to places in Johore Baharu District, and to Mr. M. C. Hay who has collaborated with me throughout.

It is realized that the list is not exhaustive nor complete: suggestions for alterations or additions will be gratefully welcomed.

BATU PAHAT DISTRICT.

No.	Malay Name.	Chinese Name.			
		Teochiew.		Other Dialects.	
		Character.	Romanized.	Character.	Romanized.
1	Ayer Hitam	財盛港	Chai Sing Kang		
2	Bagan			峇　眼	Ba Ngang H
3	Banang	廣平港	Kwong Peng Kang		
4	Bandar Penggaram			帆加欖坡 彭加琳	Pung Ka Lang Poa H P'ang Ka-Lam C
5	Batu Pahat	峇株吧轄	Ba Tu Pa Hak		
6	Bertam (see Yong Peng)				
7	Cha'a	三合港	Saa^{n} Hak Kang		
8	Kampong Baharu			監公嗎魯	Kam Kong Ba Lu H
9	Kangka Baharu	永平新港	Yung Peng Sin Kang		
10	Kangka Sedi	世發港	Si Huat Kang	謝厝港子	Chia Chhu Kang Kia H
11	Kangka Tomhel (see Kangka Baharu)				
12	Koris	龜力港	Ku Lak Kang		

BATU PAHAT DISTRICT.

No.	Malay Name.	Chinese Name.			
		TEOCHIEW.		OTHER DIALECTS.	
		Character.	Romanized.	Character.	Romanized.
13	Langkap	順天港	Sun Tian Kang		
14	Merlimau	張厝大港	Teo^{n} Tso Tua Kang		
15	Panchor	邦糯港	Pang Tsuk Kang		
16	Parit Besar			合春港	Hap Chun Kang H
17	Sembrong			新武倫	Sin Bu Long H
18	Semrah			士勿拉	Su Muh Lak H
19	Senggarang			宋加哢埠	Song Ka Lang Phoh H
20	Sepanggai, Sungai	永順利港 咣嘍新港	1 Yung Sun Li Kang 2 Miang Lu Sin Kang		
21	Simpang Kanan (branch of Batu Pahat river)			右手港	Iu Chiu Kang H
22	Simpang Kiri (branch of Batu Pahat river)			左手港	Tso Chiu Kang H

BATU PAHAT DISTRICT.

No.	Malay Name.	Chinese Name.			
		Teochiew.		Other Dialects.	
		Character.	Romanized.	Character.	Romanized.
	Places in Simpang Kiri				
23	Bertam (see Yong Peng)				
24	Bindu, Sungai	晚嘍港	Miang Lu Kang		
25	Bukit Medan			較子山 鐵　山	Kaau Chi Shaan C Thih Sua^n H
26	Sejagong	周德港	Chiu Tek Kang		
27	Senangar	張厝港子	Teo^n Tso Kang Kia^n		
28	Tebing Tinggi	嗎咬港	Ma Kau Kang	和盛港	Woh Shing Kong C
29	Simpanw Kulai (see Ayer Hitam)				
30	Sri Gading			世脚林	Se Ka Lim H
31	Sungai Ayam	亞奄港	A Yam Kang		
32	Tanjong Laboh			丹絨叻巫	Tan Jong Lak Bo H
33	Yong Peng	永平港	Yung Peng Kang		

KUKUB DISTRICT.

No.	Malay Name.	Chinese Name.			
		TEOCHIEW.		OTHER DIALECTS.	
		Character.	Romanized.	Character.	Romanized.
34	Api-Api	亞比亞比	A Pi A Pi		
35	Ayer Baloi	峇 ⿰口禮	Ba Loi		
36	Ayer Hitam (Sungai)	烏 水	O Tsooi		
37	Ayer Masin	咸水港	Kiam Tsooi Kang		
38	Ayer Masin Wharf	禮拜口	Loi Pai Kau		
39	Benut	文 律	Bun Lut	(Now in Batu Pahat)	
40	Boh, Sungai	母 港	Boh Kang		
41	Buntu, Sungai	文楮港	Bun Tu Kang		
42	Chengkeh, Sungai	貞家港	Tseng Kay Kang		
43	Choh, Sungai	西 洋	Sai Yeo^n		
44	Chokoh Besar	大招哥	Tua Cheo Koh		
45	Chokoh Kechil	小招哥	Sio Cheo Koh		
46	Glang Patah	巫許前港	Bu Koh Tsoi^n Kang		
47	Jeram Batu	字南峇楮	Ji Lam Ba Tu		

KUKUB DISTRICT.

No.	Malay Name.	Chinese Name.			
		TEOCHIEW.		OTHER DIALECTS.	
		Character.	Romanized.	Character.	Romanized.
48	Jeram Choh	字南槽	Ji Lam Tsoh		
49	Karang, Sungai	膠囒港	Ka Lang Kang		
50	Kluang, Sungai	龜嚕汪港	Ku Lu Wong Kang	(Now in Batu Pahat)	
51	Kukub	龜 咯	Ku Kuk		
52	Parit Semrah	大吧嚦	Tua Pa Lik		
53	Peneiro	笨冷落	Pung Ngeh Lok		
54	Peradin	卜亞鄰	Pok A Ling		
55	Pinggan, Sungai	賓 岸	Piang Ngai	(Now in Batu Pahat)	
56	Pok, Sungai	卜 港	Pok Kang		
57	Pontian Besar	大笨珍	Tua Pung Tin		
58	Pontian Kechil	小笨珍	Sio Pung Tin		
59	Punai, Sungai	笨奶港	Pung Nyi Kang		
60	Rambah, Sungai	南 峇	Lam Ba		
61	Renget	龍 眼	Leng Ngang	(Now in Batu Pahat)	

KUKUB DISTRICT.

No.	Malay Name.	Chinese Name.				
		TEOCHIEW.		OTHER DIALECTS.		
		Character.	Romanized.	Character.	Romanized.	
62	Rimba Terjun	崩　山	Peng Sua^n			
63	Sanglang	雙　囒	Sang Lang			
94	Serkat	實叻角	Sik Lak Kak			
65	Tanjong Adang	亞　囒	A Lang			
66	Tanjong Kupang	龜　邦	Ku Pang			
67	Tanjong Pelepas	抽家房	Tiu Kay Pang			
68	Teluk Krang	直落吉囒	Tik Lok Kik Lang			
69	Tiram Duku	呂唵港	Lö Ku Kang			
70	Ulu Pulai	黃厝港	Ng Tso Kang			

JOHORE BAHRU DISTRICT.

No.	Malay Name.	Character.	Romanized.	Character.	Romanized.	
71	Bekok	馬　咯	Beh Kok			
72	Buloh, Sungai	內　庵	Lai Am			
73	Johore Baharu	1 柔　佛	Jiu Huk	新　山	San Shaan	C
		2 嗻　呀	Jia Ga		Sin Soi^n	H

JOHORE BAHRU DISTRICT.

No.	Malay Name.	Chinese Name.			
		TEOCHIEW.		OTHER DIALECTS.	
		Character.	Romanized.	Character.	Romanized.
	Districts in Johore Baharu Town	張厝港	Teo Tso Kang		
74	1st Mile Jalan Ngi Heng (near Roman Catholic Church)	招阮港	Tsiao Wong Kang		
75	1½ mile Jalan Ngi Heng	義興公司	Nyi Heng Kong Si (a)		
76	Neighbourhood of Railway about Jalan Lumba Kuda	羔丕園	Ku Pi Hng (b)		
77	Kampong A Fook	嗎咬街	Ma Kau Koi (c)		
78	Neighbourhood of Chinese Cemetery	公司山	Kong Si Sua^{n}		
79	Neighbourhood of Hospital	病厝港	Peh Tso Kang		
80	1¾ Mile Jalan Ayer Molek	老羔丕園	Lau Ku Pi Hng (d)		

JOHORE BAHRU DISTRICT.

No.	Malay Name.	Chinese Name.			
		TEOCHIEW.		OTHER DIALECTS.	
		Character.	Romanized.	Character.	Romanized.
81	2nd Mile Sekudai	魚　寮	Hö Liau (e)		
82	1½ Mile Jalan Tebrau	老籃擇	Lau Na Teh (f)		
83	Kampong A Siang	新鑑功	Sin Kam Kong		
84	Junction of Jalan Lumba Kuda and Pasir Plangi Rd.	大　晶	Tua Chia^n (g)		
		金順港	Kim Soon Kang		
85	Tarom	水　池	Tsooi Ti		
86	Jalan Teh	楊厝港	Yeo^n Tso Kang		

(a) Reference to the Headquarters of the Yi Hing (Gi Hin) Society, a registered society in Johore until the year 1916.

(b) Literally—"Coffee Plantation". One Seah Yim Kwi who gives his name to Jalan Yim Kwi was the owner of this coffee plantation.

(c) Macau—(Cantonese) Street. Reference to a Cantonese as a "Macau" is now looked on as objectionable and no doubt this is why the street's name was changed. In the same way the Cantonese expression Hailam Tsai annoys the Hailam.

(d) Reference to the coffee plantation of the late Tang Tua Chia who was "Kangchu" of Kim Sung Kangka

(e) "Fishing Huts" in reference to the fishing population which is still there.

(f) "Old Datoh" in reference to the late Menteri Besar whose house occupies a prominent position in that neighbourhood.

(g) See (d).

JOHORE BAHRU DISTRICT.

No.	Malay Name.	Chinese Name.			
		TEOCHIEW.		OTHER DIALECTS.	
		Character.	Romanized.	Character.	Romanized.
	Johore Bahru-Kluang Road				
87	4th to 9th Mile	劉厝港	Lau Tso Kang		
88	9th Mile (Sekudai)	烏　橋	O Kio		
89	13th Mile	洪厝港	Ang Tso Kang		
90	15th Mile (Senai)	1 砂　隴	Sa Ling		
		2 和　豐	Wa Hong Kang		
91	24th Mile (Sedenak)	保義成	Pau Nyi Seng		
92	Kim Kim, Sungai	金金港	Kim Kim Kang		
93	Kluang	居　鑾	Ko Luang		
94	Kulai	唵　來	Ku Lai		
95	Layang-Layang	朥香朥香	Lai Hiang Lai Hiang		
96	Lunchu, Gunong	叶　裕	Hiap Joo		
97	Masai, Sungai	李厝港	Li Tso Kang		
98	Melayu, Sungai	巫許後港	Bu Koh Au Kang		

JOHORE BAHRU DISTRICT.

No.	Malay Name.	Chinese Name.				
		TEOCHIEW.		OTHER DIALECTS.		
		Character.	Romanized.	Character	Romanized.	
99	Meugkibol	明結摩	Meng Kik Moh			
100	Nyior			梁車頭	Leung Che T'au	C
101	Paloh	芭　蘿	Pa Loh			
102	Pasir Gudang	吧些吁囒	Pa Seh U Lang			
103	Pendas, Sungai	謝厝港	Tsia Tso Kang			
104	Plintong	鄭厝港	Teh Tso Kang	鄭屋港	Cheng Uk Kong	C
105	Pulai, Gunong	大埔來山	Tua Po Lai Sua^n			
106	Pulai village	天順港	Tian Sun Kang			
	.	黃厝後港	Ng Tso Au Kang			
107	Renggam			令　金	Ling Kam	C
108	Sayong, Sungai	素岸賽容	Su Ngai Sai Yung			
109	Sedenak	1 保義成	Pau Nyi Seng			
		2 實建叻	Sik Kian Lak			
110	Senai	士　乃	Si Nai			
111	Skudai (10th Mile)	十條石	Tsap Tio Tsiuk	海皮十條石	Hoi P'ei Shap T'iu Shek	C

JOHORE BAHRU DISTRICT.

No.	Malay Name.	Chinese Name.			
		TEOCHIEW.		OTHER DIALECTS.	
		Character.	Romanized.	Character.	Romanized.
112	Tampoi	1 義和港 2 淡 柸	Nyi Wa Kang Taam Poi		
113	Tebrau	1 陳厝港 2 打勿樓	Tang Tso Kang Pak Buk Lau		

KOTA TINGGI DISTRICT.

No.	Malay Name.	Teochiew Character.	Teochiew Romanized.	Other Dialects Character.	Other Dialects Romanized.
114	Batu Limablas (13th Mile Johore—Kota Tinggi Road)*	新 林	Sin Lim		
115	Buntu, Sungai	三彎島	Saa^n Wang To		
116	Chemarang	黃厝港	Ng Tso Kang		
	Places in Johore River above Kota Tinggi				
117	Belik, Tanjong	新祿馬 新羅馬	Sin Loh Ma		

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* This Village was at 15th mile before deviations were made, now at 13th mile.

KOTA TINGGI DISTRICT.

No.	Malay Name.	Chinese Name.			
		TEOCHIEW.		OTHER DIALECTS.	
		Character.	Romanized.	Character.	Romanized.
118	Lenggiu	能由	Leng Yiu		
119	Lubok Pekan	泰盛港	Tai Seng Kang		
120	Malim Surat	新紀	Sin Ki		
121	Panti, Gunong	邦池大山	Pang Ti Tua Suaⁿ		
122	Panti, Sungai	邦池	Pang Ti		
123	Pengkalan Dusun	保黎成	Poh Lei Sing		
124	Persisek	桂茂	Kooi Mong		
125	Pinang, Sungai	財成	Tsai Seng		
126	Rantu Panjang	老板廊	Lau Pang Lang		
127	Seah Ting Cheang Sungai Bharu	佘廷章新港	Seah Teng Chiang Sin Kang		
128	Semanggar	老紀港	Lau Ki Kang		
129	Sisir Bharu	新詩嚏	Sin Si Seh		
130	Sisir Lama	老詩嚏	Lau Si Seh		
131	Tampoi	中紀	Tong Ki		

KOTA TINGGI DISTRICT.

No.	Malay Name.	Chinese Name.			
		Teochiew.		Other Dialects.	
		Character.	Romanized.	Character.	Romanized.
132	Tek Wah Heng	德和興	Tek Wa Heng		
133	Tingkil	天吉港	Tian Kik Kang		
134	Johore River Estuary (below Kota Tinggi)	柔佛大港	Ngiu Hot Tua Kang		
	Places in Johore River Estuary				
135	Bukit Beraman (see Penderam)				
136	Johore Kampong	1 監㕵	Kam Kong		
		2 大監㕵	Tua Kam Kong		
137	Johore Lama	柔佛大港	Ngiu Hot Tua Kang		
138	Kong Kong, Sungai	槓槓	Kong Kong		
139	Layang, Sungai	賴香港	Lai Hiang Kang.		
140	Panchor	板槽	Pang Cho		
141	Pasir Goh	吧些鵝	Pa Si Gok		

KOTA TINGGI DISTRICT.

No.	Malay Name.	Chinese Name.			
		TEOCHIEW.		OTHER DIALECTS.	
		Character.	Romanized.	Character.	Romanized.
142	Penderam	老南興	Lau Lam Heng		
143	Seluyut Hilir	新東順	Sin Tang Sun		
144	Seluyut Ulu	老東順	Lau Tang Sun		
145	Serai	新南興	Sin Lam Heng		
146	Tanjong Langsat	蘭砂	Lang Sat		
147	Tanjong Putus	崩山	Pang Sua^n		
148	Tanjong Surat	蘇叻	So Lak		
149	Telok Sengat	南亞	Lam A		
150	Temon	地呅 知問	Ti Bun		
151	Tiram, Kuala	老林	Lau Lim		
152	Tiram, Ulu (Tiram Tinggi)	中林	Tong Lim		
153	Kampong Jawa (Pengerang)	大灣島	Tua Wang To		

KOTA TINGGI DISTRICT.

No.	Malay Name.	Chinese Name.			
		TEOCHIEW.		OTHER DIALECTS.	
		Character.	Romanized.	Character.	Romanized.
154	Klesa, Sungai	枝里思港	Ki Li Sz Kang		
155	Kota Tinggi	德興港	Tek Heng Kang		Tak Heng Kong C
156	Lebam, Sungai	南函大港	Lam Hang Tua Kang		
	Places in Lebam River				
157	Layau	邦 瑤	Pang Yau		
158	Lebam	南 函	Lam Hang		
159	Papan, Sungai (Tanjong Saringgit or Serindit)	巴盤河	Pa Pung Ho*		
160	Mawai	和興港	Wa Heng Kang		
161	Muntahak, Gunong	文淡合	Bun Ta Hak		
162	Penawar	不邦安	Puk Pang Ang		
163	Pengerang	邦牙蘭	Pang Ngeh Lang		
164	Pengileh, Tanjong	老財盛	Lau Tsai Seng		
165	Remunia, Tanjong	五灣島	Ngo Wang To		

* This is the name used by the Japanese Settlement at this place.

KOTA TINGGI DISTRICT.

No.	Malay Name.	Chinese Name.			
		TEOCHIEW.		OTHER DIALECTS.	
		Character.	Romanized.	Character.	Romanized.
166	Santi, Sungai	雙池港	Sang Ti Kang	新打山	Sin Ta San K
	Places in Santi River				
167	Pelawan	洪厝港	Ang Tso Kang		
168	Sanning	信寧	Sin Ling		
169	Sebena	澤水港	Tsiak Tsooi Kang		
170	Sedili Besar, Sungai	素喱哩港	Su Li Li Kang		
	Kangkas in Sedili Besar				
171	Bukit Tiga	和盛	Wa Seng		
172	Danàu	永豐隆	Yong Hong Long		
173	Dohol	和成	Wa Seng		
174	Gembut	源發	Nguan Huat		
175	Gemireh	和祥	Wa Siang		
176	Kambau	和平港	Wa Peng Kang		

KOTA TINGGI DISTRICT.

No.	Malay Name.	Chinese Name.			
		TEOCHIEW.		OTHER DIALECTS.	
		Character.	Romanized.	Character.	Romanized.
177	Lubok Pusing	福順	Hok-Sun		
178	Sungai Kayu (Bagan Limau)	順成	Sun Seng		
179	Sedili Kechil, Sungai	永泰	Yong Tai		
180	Sembayong, Sungai	和信港	Wa Sin Kang		
181	Tangga Tujoh	踏板新港	Tat Pang Sin Kang		

MUAR DISTRICT.

No.	Malay Name.	Teochiew Character.	Teochiew Romanized.	Other Dialects Character.	Other Dialects Romanized.
182	Ayer Panas			燒水湖	Shio Tsui O H
183	Bandar Maharani			麻坡	Ma Poh H & C & T
184	Batu Sa-puloh Jalan Bakri			陳再興	Tan Tsai Hin H
185	Bekoh			1 木角 2 沒篙	Buk Kak H Mut Ko C
186	Bukit Belading	沒勝連	Buk La Ling	勿那合	But Na Hap H

MUAR DISTRICT.

No.	Malay Name.	Chinese Name.				
		Teochiew.		Other Dialects.		
		Character.	Romanized.	Character.	Romanized.	
187	Bukit Pasir			1 砂 論	Swa Loon	H
				2 風車頭	Fung Ch'e T'au	C
188	Jementah			1 而門打	Ji Bun Ta	H
				2 兒文打	Yi Man Ta	C
189	Jeram			而 南	Ji Lam	H
190	Kangka Sungai Mati			大厝港脚	Tua Tsu Kang Ka	H
191	Kesang			吉 雙	Kit Siang	H
192	Muar Town (see Bandar Maharani)					
193	Muar River			麻坡港	Ma Poh Kang	H
	Places on Muar River					
194	Bukit Kepong			甲 蓬	Kap Pong	H
195	Bukit Serampong			劉厝港	Lau Tsu Kang	H
196	Durian Chondong			老巫許	Lau Bu Kho	H

MUAR DISTRICT.

No.	Malay Name.	Chinese Name.				
		TEOCHIEW.		OTHER DIALECTS.		
		Character.	Romanized.	Character.	Romanized.	
197	Gersek			玉色	Geuk Sek	H
198	Gumbang			論橫	Lun Hueh^{n}	H
199	Jorak			頭條	Tau Tiao	H
200	Kundang			裙冷	Kun Leng	H
201	Labis, Sungai			八條	Put Tiao	H
202	Landaron	三條紅毛園	Saa^{n} Tiu Ang Moh Hng	由港	You Kang	H
203	Lenga, Sungai			五條	Goh Tiao	H
204	Nordanal	四條紅毛園	Si Tiu Ang Moh Hng	對面山	Tui Bin Sua^{n}	H
205	Pagoh, Sungai			三條	Saa^{n} Tiao	H
206	Panchor			板槽	Pan Choh	H
207	Renchong, Sungai			四條	Si Tiao	H
208	Sinkang Bukit Serampong			劉厝港新港	Lau Tsu Kang Sin Kang	H
209	Sinkang Durian Chondong			老巫許新港	Lau Bu Kho Sin Kang	H

MUAR DISTRICT.

No.	Malay Name.	Chinese Name.				
		TEOCHIEW.		OTHER DIALECTS.		
		Character.	Romanized.	Character.	Romanized.	
210	Sinkang Pagoh			三條新港	Saa^{n} Tiao Sin Kang	H
211	Sinkang Reng			長發港	Tiang Huat Kang	H
212	Sinkang Renchang			四條新港	Si Tiao Sin Kang	H
213	Tanjong Olak	頭條紅毛園	Tau Tiu Ang Moh Hng	士那威	Sz Na Wi	H
214	Tui, Sungai			七條	Tsit Tiao	H
215	Pengkalan Besar			鄉村	Hiu^{n} Tsun	H
216	Pengkalan Bukit			二條	Ji Tiao	H
217	Relau	綠勞	Lik Lau			
218	Sagil			沙益	Swa Yit	H
219	Serom			什廊	Tsap Long	H
220	Sialang	斜亞籠	Sia A Lang	坐逢	Tsoh Pung	H

SEGAMAT DISTRICT.

221	Batu Anam	六條石	Lak Tiao Chiuk			
222	Buloh Kasap	膠什	Ka Tsap			
223	Gemas (Johore)	大港	Tua Kang			

SEGAMAT DISTRICT.

No.	Malay Name.	Chinese Name.			
		TEOCHIEW.		OTHER DIALECTS.	
		Character.	Romanized.	Character.	Romanized.
224	Genuang	牛怒汪	Gu Nu Wang		
225	Labis	朥峚士	La Bik Si		
226	Palong	吧　隆	Pa Long		
227	Segamat	1 唶咖吔	Sik Kia Mat		
		2 唶听挽			
228	Tenang	除　囒	Tö Lang		
229	Tumang	中　蝱	Tong Mang		

ENDAU DISTRICT

No.	Malay Name.	Teochiew Character.	Teochiew Romanized.	Other Dialects Character.	Other Dialects Romanized.	
230	Ambat, Sungai			菴八港	Om Paat Kong	C
231	Endau, Kuala			興　流	Hing Lau	C
232	Endau, Sungai			興流港	Hing Lau Kong	C
233	Jemaluang			1 三板頭	Saam Paan T'au	C
				2 大興街塲	Tai Hing Kai Ch'eung	C

ENDAU DISTRICT.

No.	Malay Name.	Chinese Name.				
		TEOCHIEW.		OTHER DIALECTS.		
		Character.	Romanized.	Character.	Romanized.	
234	Kahang (Kuala Madek)			加　坑	Ka Hang	C
235	Kangka Ulu			茂盛港	Mo Sing Kong	C
236	Kuala Jemaluang			任羅宏	Yam Loh Wang	C
237	Kuala Kahang			加坑港口	Ka Hang Kong Hau	C
238	Lenggor			靈　娥	Ling Ngoh	C
239	Mersing			豐盛港	Fung Sing Kong	C
240	Mersing Kanan			逐　港	Chuk Kong	C
241	Pulau Aur			布羅亞澳	Po Loh A O	C
242	Pulau Babi			1 布羅馬尾	Po Loh Ma Mei	C
				2 猪　山	Chii Shaan	C
243	Pulau Pemanggil			布羅吧蟒夷	Po Loh Pa Mong Yi	C
244	Pulau Sibu			布羅施武	Po Lo Shi Mo	C
245	Pulau Tinggi			將軍帽	Tseung Kwan Mo†	C

† Literally—"General's Hat," a picturesque allusion to the shape of the Island.

ENDAU DISTRICT.

No.	Malay Name.	Chinese Name.				
		TEOCHIEW.		OTHER DIALECTS.		
		Character.	Romanized.	Character.	Romanized.	
246	Sembrong			蘇武壠	So Mo Lung	C
247	Tanjong Penyabong			沉香港	Cham Heung Kong	C
248	Telok Sari			馬　澳	Ma O	C
249	Triang			沉香港	Cham Heung Kong*	C

* Not distinguished from Tanjong Penyabong

SUPPLEMENT

Islands and Places adjoining Johore Territory.

No.	Malay or English.	Chinese Name.			
		TEOCHIEW.		OTHER DIALECTS.	
		Character.	Romanized.	Character.	Romanized.
250	Asahan (Malacca)	亞沙漢	A Saa Han		
251	Gemas (Negri Sembilan)	金孖是	Kim Ma Si		
252	Pulau Nanas	打石山	Pa Chiuk Sua^{n}*		
253	Pulau Pisang	芎蕉嶼	Keng Cheoh Sz		Geng Cheoh Sz H
254	Pulau Tekong Besar	直 愩	Tek Kong		
255	Pulau Ubin	吁 孟	U Bin		

* Literally "Stone Quarry." in reference to the stone quarries there.

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An early Malay Inscription from Trengganu.

By Major H. S. Paterson.

This paper is intended to serve as a preliminary notice of an inscription on stone, which has been discovered in the State of Trengganu on the East Coast of the Malay Peninsula. Although, unfortunately, only a fragment, it is of great importance, as being in the first place the oldest Malay text in the Arabic script yet discovered, and secondly the earliest contemporary record of the introduction of the Muhammadan religion into any state of the Peninsula. It is now in Raffles' Museum, Singapore, having been loaned to that institution by H. H. the Sultan of Trengganu.

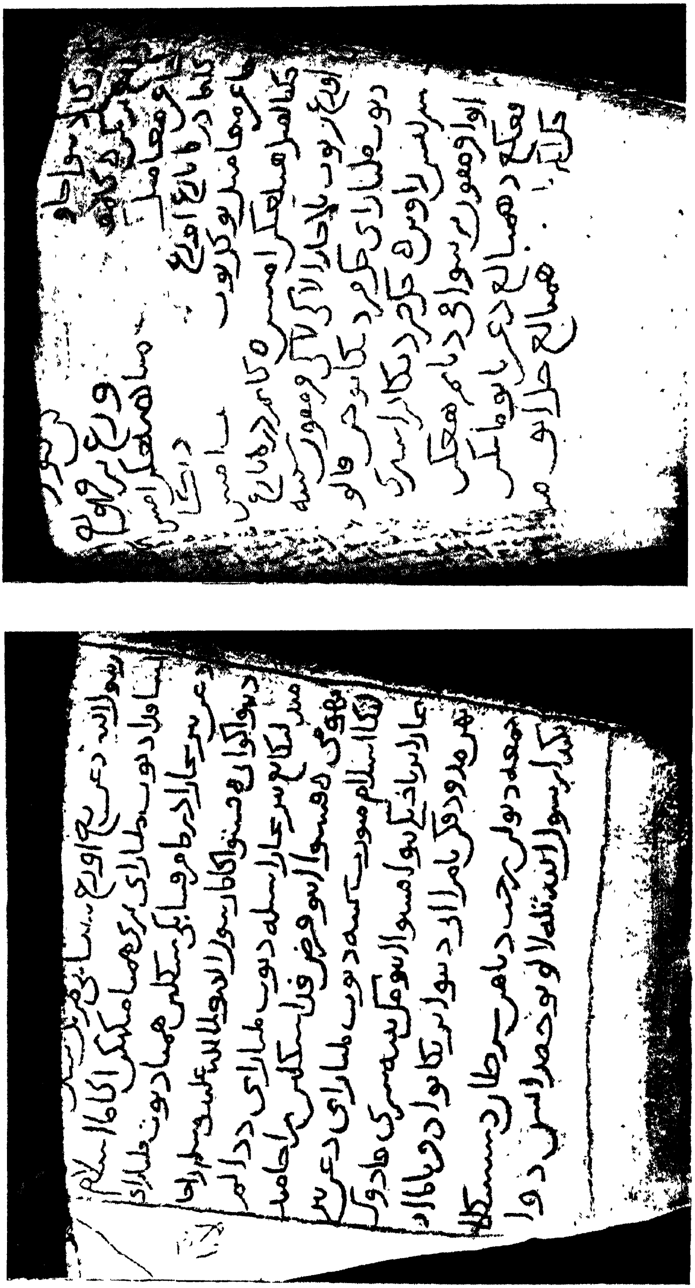
The stone in question was discovered some twenty-five years ago by an Arab trader and tin-prospector named Sayid Husin bin Ghulam al-Bokhari in the river Tĕrĕsat near Kuala Bĕrang, about twenty miles upstream from the mouth of the river Trengganu. The neighbouring village, lying as it does in a commanding position at the junction of three streams, has always been a trading and marketing centre and may even have been at one time the capital of the State.

According to a local tradition the stone lay for a long time in front of a "surau" or private mosque where it formed the step on which worshippers washed their feet before entering. This is to a certain extent borne out by the presence of a small patch worn smooth, it may well be by the constant friction of bare feet. The story goes on to say that an "imam" of the mosque, discovering characters inscribed on the stone, ordered it to be removed from the sacred precincts to the river, whence it was finally recovered by Sayid Husin. Whatever may have been the reason for its removal the writer was informed that the Malays of Kuala Bĕrang were superstitious enough to refuse to handle it.

The stone was duly brought downstream and presented to the late Sultan Zainal-Abidin, who had it placed in the old Malay fort on Bukit Putĕri which overlooks the estuary.

Apparently attempts were made to decipher it and preliminary enquiries elicited vague accounts varying from a record of hidden treasure to a memorial of the punishment of an unfaithful wife by a raja of olden time. A transcription was even sent to Mecca to be interpreted by the scholars of Arabia, but there is no record of the result of their investigation.

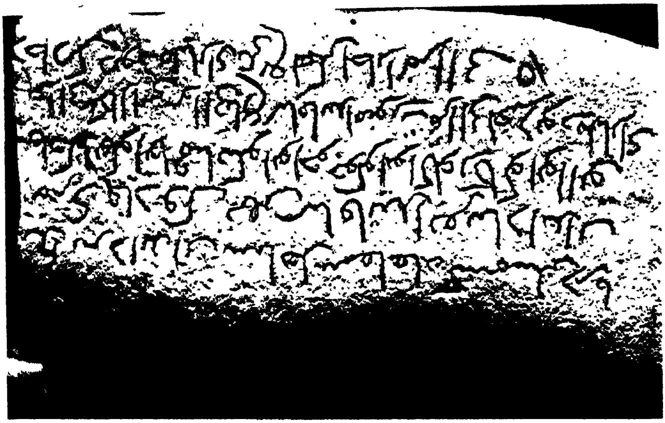
Finally, towards the end of 1922, the attention of the writer was drawn to the inscription, which was traced out with chalk and the photographs taken (by Mr. N. Suzuki, Kuala Trengganu) which form the illustrations to this article.



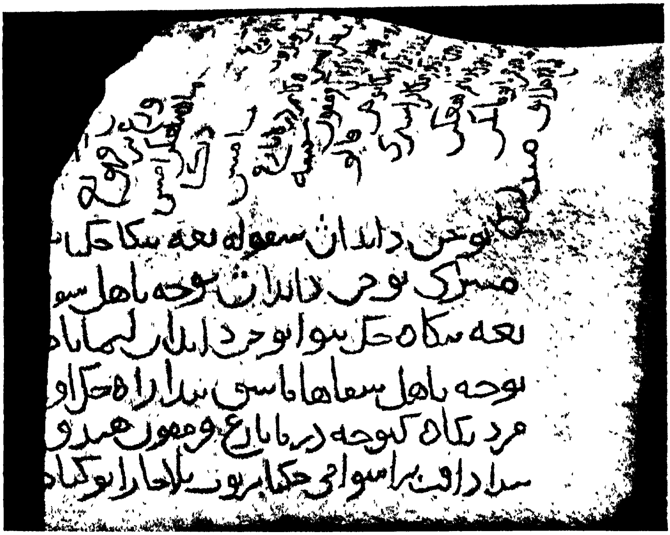
A.

B

TRENGGANU INSCRIPTION



D.



C.

TRENGGANU INSCRIPTION

The stone itself is a roughly squared stele of gneissic granite of which the top portion has been lost. The fragment in our possession stands 33 inches in height, with a maximum breadth at the top of 21 inches tapering to 10½ inches at the foot, and an average depth from front to back of 9½ inches. It weighs between 400 and 500 lbs. The inscription covers all four faces for a distance of 18 inches from the top; the remaining space of 15 inches at the bottom has been left clear with the obvious intention of allowing the stone to be planted upright in the ground.

The characters appear to have been engraved with a pointed instrument to an average depth 1/16th of an inch, and are for the most part easy to trace, having suffered little from weathering, and this in spite of the fact that the stone is fissile and will not easily withstand rough handling. As it is the surface has flaked off in two places, the larger of which has left a lacuna of several words not easily supplied by conjecture.

The photographs shew that the workmanship is distinctly crude. No attempt has been made to reproduce the formal and decorative effect to which the Arabic script lends itself; the spelling is unorthodox as compared with later usage, and in addition to a few definite blunders, the task of deciphering has been rendered more difficult by the absence of nearly all the diacritical points which in Arabic script serve to distinguish one letter from another.

The order of the faces is clearly ascertainable.—Starting from the front or broadest face which is marked A, the inscription continues on the back, marked B, whence it curves without a break round the left hand bottom corner on to the left side C where the writing runs lengthways up the stone, and it concludes on the right side D running lengthways from top to bottom. Thus, as we have only the bottom portion of the stone: the top portions of A and B, the ends of the lines of C, and the beginnings of the lines of D. are missing. It is hard to say what is the relative amount of the missing material, though it may be as much as one half of the whole record.

The inscription records an order to promulgate certain legal provisions, comprised in nine (or perhaps ten) numbered sections. The front face (A), which forms the preface contains a proclamation ordering rulers and governors to expound and uphold the Muslim faith and the teachings of God's Apostle, and concludes with a date which reads "in the month of Rejab in the year 702 A. H."

This represents approximately the months of February and March 1303 A. D., a full hundred years before the next contemporary record of any state in the Peninsula embracing the Muhammadan religion. It is indeed open to argument that the date, which comprises the last words of the front face, may have continued with the addition of certain tens and units on the missing part of the back, but even this still keeps it within the 8th century of the Muhammadan era, and the 14th of our own.

It is perhaps worth mentioning that in 1365, that is to say not many years from the latest date to which this inscription can be attributed, Trengganu was claimed as a vassal state of the Javanese kingdom of Majapahit whose state religions were Hinduism and Buddhism, but this does not exclude the possibility of Trengganu having become Muhammadan, seeing that a similar claim was made in respect of Perlak and Samudra, which by that time had certainly adopted Islam.

The remaining three faces of the inscription contain the Ten Laws in a very fragmentary form. The first three are missing with the top portion of B: the fourth appears to deal with the relations of creditor and debtor, but a number of words are missing owing to the flaking away of a large patch from the surface which makes the reconstruction of this and the following law uncertain.

The sixth, of which a fragment of six complete lines is left, with portions of four more on C, prescribes for the offence of sexual wantonness the punishment of stoning in the case of married persons, and flogging, with the option of a graduated scale of fines for the unmarried. This is strictly in accordance with Muhammadan Law.

The seventh appears to deal with some special case of wantonness on the part of women, the eighth with false evidence; the ninth seems to be a general provision for punishment in default of payment of a fine.

The concluding section which there is reason to believe is numbered 10 makes obedience to the above code binding, not only on the person addressed, but also on his children and grandchildren, in a manner vaguely reminiscent of the second Commandment of the Mosaic Decalogue.

The characters, as I have already mentioned, are Arabic, and this is a very interesting and important phenomenon. The Malay language has appeared in older inscriptions, being clearly traceable in two inscriptions recently discovered in Palembang (Sumatra) which are ascribed to the 7th. century A. D. and again in the Pagar Ruyong inscription of A.D. 1356, but in each case in an Indian character and with a heavy admixture of Sanskrit words and phrases which have since dropped out of the language. The earliest instances of Arabic script are all in the Arabic language, as for instance the tombstone of Malik-al-Saleh, Sultan of Pasai and Samudra and a convert to Islam, who died in A. D. 1297, and it is not until A.D. 1468 that we find in the Malay Peninsula another example of the combination of the Malay language and Arabic script which have since established themselves in the literature of the Malay speaking countries. This inscription, belonging as it does to the 14th century, contains many words of Sanskrit origin,—there are 29 in the fragment under review, while there are less than 10 borrowed from Arabic and these are confined to the Arabic names for the day of the week and the month, and the stock religious phrase "Rasul Allah sallallahu ʻalaihi wa sallama"—"the prophet of God (God bless him and give him peace,)" while the expression employed for the Deity seems to be simply a translation of the Arabic "Allah subhanahu wa taala."

The evidence, in fact, leads inevitably to the conclusion that this represents the promulgation of a new religion in language adapted to the understanding of a population educated only in Hinduistic religious terms.

The period of the inscription is one in which Islam was slowly but surely displacing the older religious beliefs of the Malays. That it should have succeeded in its earlier stages is a tribute to the persistence of Arab traders and missionaries who can never have been sufficiently numerous to impose their beliefs by the forcible methods which they employed in the conquest of the western parts of Asia. In the Malay Peninsula they have completely and utterly substituted their own writing for that of the Hindu period, though Islam has not even yet succeeded in wiping out the pagan superstitions of the uneducated peasant classes.

The text may be read roughly as follows, the doubtful parts being in italics:—

A.

1. Rasul Allah dĕngan yang orang....*bagi* mĕreka........
2. ada pada Dewata Mulia Raya bĕri hamba mĕnĕgohkan ugama Islam.
3. dĕngan bĕnar bichara dĕrma mĕraksa bagi sakalian hamba Dewata Mulia Raya
4. di-bĕnua-ku ini *pĕnĕntu* ugama Rasul Allah salla'llahu 'alaihi wa sallama Raja
5. mandalika yang bĕnar bichara sa-bĕlah Dewata Mulia Raya didalam
6. bĕhumi. Pĕnĕntua itu fardzu pada sakalian Raja manda-
7. -lika Islam mĕnurut sa-titah Dewata Mulia Raya dĕngan bĕnar.
8. bichara bĕrbajiki bĕnua pĕnĕntua itu maka titah Sĕri Paduka
9. Tuhan mĕdudokkan tamra ini di-bĕnua Trĕnganu adi-pĕrtama ada
10. Juma'at di-bulan Rĕjab di-tahun sarathan di-sasanakala
11. Baginda Rasul Allah tĕlah lalu tujoh ratus dua

B.

1. kĕluarga di-bĕnua jauh........*kan*......*ul*
2. *datang* bĕrikan. Kĕĕmp-(at dĕrma barang) orang bĕrpi-hutang
3. jangan mengambil *k*......(a)mbil hilangkan ĕmas
4. kĕlima dĕrma barang orang..............(*mĕr*) deka
5. jangan mĕngambil *tugal buat* *t* ĕmas-nya
6. jika ia ambil hilangkan ĕmas. Kĕĕnam dĕrma barang
7. orang bĕrbuat balachara laki laki pĕrĕmpuan sa-*titah*
8. Dewata Mulia Raya jika mĕrdeka bujan palu
9. sa-ratus rautan. Jika mĕrdeka bĕristĕri
10. atawa pĕrĕmpuan bĕrsuami di-tanam hinggan

11. pinggang di-hĕmbalang dĕngan batu matikan
12. jika inkar *ba(lachara)* hĕmbalang jika anak mandalika

C.

1. bujan danda-nya sa-puloh tĕngah *tiga* jika ia..........
2. mĕntĕri bujan danda-nya tujoh tahil sa-p(aha..........
3. tĕngah tiga. Jika *tĕtua* bujan danda-nya lima ta(hil....
4. tujoh tahil sa-paha masok bĕndara. Jika o(rang......
5. mĕrdeka. Kĕtujoh dĕrma barang pĕrĕmpuan hĕndak..
6. tida dapat bĕrsuami jika ia bĕrbuat balachara....... ..

D.

1. ....tida bĕnar danda-nya sa-tahil sa-paha. Kĕsĕmbilan dĕrma
2. ....Sĕri Paduka Tuhan siapa tida......danda-nya
3. ....kĕsapuloh dĕr)ma jika anak-ku atawa *pĕmain* (?) ku atawa chuchu-ku atawa kĕluarga-ku atawa anak
4. ....tamra ini sĕgala isi tamra ini barang siapa tida mĕnurut tamra ini laanat Dewata Mulia Raya
5. ....di-jadikan Dewata Mulia Raya bagi yang langgar achara tamra ini.

I append a translation made by Mr. C. O. Blagden, which he has kindly permitted me to use, with a few notes on points where my reading of the text differs from his version.

Translation.

A.

.......................God's Apostle, together with the Blessed Spirits (a salutation to them)...................(2) trust in the Great High Godhead, cause the servants to hold firmly the doctrines of Islam (3) together with true regard for the laws, govern all the servants of the Great High Godhead (4) in this land of mine. The expounders on earth of the doctrines of God's Apostle (God bless him and give him peace!) are the Raja (5) Mandalikas who have true regard towards the Great High Godhead. (6) Such exposition is incumbent upon all Muslim Raja Mandalikas, (7) following all the commands of the Great High Godhead together with true (8) regard for the setting in order, for the country, of such exposition; and when Seri Paduka Tuhan (9) first ordered the setting up of this record in the country of Trengganu it was (10) a Friday in the month of Rejab, in the year "Cancer," in the religious era (11) of our Lord the Apostle of God, after the passing (in that era) of seven hundred and (?) (years)..................

B.

..................relatives in distant countries.......... ....(2) who gave. Fourth law:............a creditor (3) must not take........................a (field ?), (else he) loses (his) money. (4) Fifth Law: whatsoever person ....(a free person ?), (5) must not take (the planting stick ? for making?)....................money, (6) if he takes (them), (he) loses (his) money. Sixth law : whatsoever (7) person commits sexual wantonness (in disobedience of ?) (8) the Great High Godhead, if (it be) an unmarried free (person) beat (him with) (9) a hundred (blows of a) rattan. If (it be) a free (man) that has a wife (10) or woman that has a husband, (such) are to be buried up to (11) the waist (and) pelted with stones (and) put to death. (12) If (they deny it?)............ pelted. If (it be) the unmarried child of a Mandalika,

C.

the fine is ten and a half *sagas*. If it (be).................. (2) an unmarried Menteri, the fine is seven *tahils* and one *paha* ....(3) half a *saga*. If (it be) an unmarried (elder ?), the fine is five *tahils*...................... (4.) seven *tahils* and one *paha*, to go into the Treasury. If (a person ?)....................(5) a free person. Seventh law: whatsoever woman (desires ?).......................(6) has not got a husband, if she commits (that ?) wantonness, (she incurs a fine ?).......................not true, the fine is one *tahil* and one *paha*. Ninth law: (2).....................Seri Paduka Tuhan (orders that ?) whoever (cannot be made to pay ?) his fine, (3)..............................(Be it ?) my ...., or my (playmate ?), or my grandchild, or my kinsman, or the child (of)....(4)..................this (record ?), all the contents of this (record ?), whosoever does not obey this record, (may) the curse of the Great High Godhead (5)........................ (may).................... be caused by the Great High Godhead to (any) who offend against the provisions of this record.

Notes.

A. Line 1. Blessed spirits etc.—A translation of an alternative reading *arwah santabi*. I incline to the word *orang* which cannot be converted to *arwah* without presuming an egregious blunder on the part of the engraver, and would suggest that the reference is to "persons who put their trust in etc.,"

A. Line 4. *salla 'llahu* etc. is so plainly what is intended that the engraver's variation is only worth noting as an example of his ignorance of the one complete Arabic phrase which occurs in the inscription.

A. Line 11. *tujoh ratus dua,*—The first part of the proclamation seems to close quite definitely with these words, this face of the inscription being sharply scored round with a single deeply cut line. I understand that the date thus given, A. H. 702 (A. D. 1303) is historically doubtful, but the point is discussed in Mr. Blagden's paper.

B. Line 3. (*a*)*mbil*. A close examination of the stone seems to reveal traces of the final *l*. I would conjecture the preceding word to be *jika ia,* which has an echo in line 6. This leaves a lacuna of probably not more than two words.

B. Line 7. *sa-titah* "it is the command" (cf. A. 1.7). I prefer this to the alternative *sa-bantah.*

B. Line 12. *inkar balachara hembalang.* The second word is an almost certain restoration, as the stone shews traces of the upper parts of three tall letters (alif) with precisely the same spacing as in 1. 7, and I can see no alternative to *inkar;* in which case, however, the meaning would appear nonsensical, "if they deny the offence (they shall yet be) stoned!"

C. Line 1. *sa-puloh tengah tiga.* I incline to this, with the word *tahil* understood, rather than the alternative 10½ *saga.* If, as there is reason to believe, a *saga* is one-twentieth part of a *tahil* the fine imposed on the child of a reigning prince is light indeed compared with fines of 7½ or 5 *tahils* for those of lower rank.

In these brief notes I have purposely dealt with nothing beyond the obvious and superficial points which have presented themselves on what is, I believe, the first serious attempt to master the contents of this inscription. The intrinsic details of the historical and philological side of the record are beyond the scope of the present writer.

In conclusion I wish to express my thanks to all who have assisted me in the preparation of this article and in particular to Mr. C. O. Blagden, who besides allowing me to use his translation, gave me in addition the privilege of his advice and comments of which I have not hesitated to avail myself.

A Note on the Trengganu Inscription.

By C. O. BLAGDEN.

The most important point about this interesting record is the date at which the enactments of Islamic Law that it contains are recorded by it to have been promulgated. That much is obvious, for the wording of the record indicates that the promulgation was an act of state and that at that time the Muhammadan religion had become the "established church" of Trengganu. Whatever the precise date may be, it is at any rate earlier than any hitherto recorded establishment of Islam as a state religion in the Malay Peninsula. But of course one would like something more definite than that.

Most unfortunately the first face of the stone ends with the words *di-tahun Saratān di-sasanakala Baginda Rasul Allah tĕlah lalu tujoh ratus dua.* Now to me it seems that this is necessarily an incomplete statement, and that in order to complete it there must have been on the next face the word *tahun,* "years." Taking the words *tĕlah lalu* literally one is tempted to interpret them in the sense that the number of years stated had actually completely elapsed at the time referred to (when the edict was promulgated). I do not, however, interpret them in that way. The years of the Islamic Calendar, like our own years, are commonly reckoned as current years. In the case of Indian inscriptions (Hindu or Buddhist) the reckoning is very generally (but not always) expressed in expired years, i.e. the number of years actually completed since the initial point of the particular era used, this being then followed by a statement of the month (lunar or solar) and day, and very often by various other details of astronomical and astrological import. I am disposed to think that the use here of an expression which, if literally interpreted, implies the mention of expired years was merely due to a traditional habit and that the Muhammadan year given is, in spite of the formula employed, to be taken as the year current at the moment. But even so the Malay phrase, as such, seems to me to be incomplete without the word *tahun* after it.

If, however, the statement of the date ran over onto the next face, the upper part of which is unfortunatey lost, various possibilities arise. The *dua* may then have been not the mere integer "two" but a part of either (i) *dua-lapan,* the old well-attested form now reduced to *dĕlapan* or *lapan,* "eight", or (ii) *dua-puloh,* "twenty." Either of these could have completed the number of the years, and either could have been further followed by other numbers. Consequently there may have been two more alternatives, these being groups of years, viz. (iii) *dua-puloh* followed by any integer from *satu,* "one" to *sĕmbilan,* "nine", and (iv) *dualapan-puloh,* either by itself or followed by any integer, as before. Thus the range of possible alternative years is enlarged to the series 702, 708, 720-729, and 780-789, if we regard merely the year number. However with the given month (Rajab) the alternatives as expressed in our reckoning come down to these: (1) the lunar month beginning 19 February 1303, (2) the lunar month beginning 15 December 1307, (3) one of the months of Rajab comprised in the period beginning 7 August 1320 and ending 30 May 1329, and (4) one of the Rajabs of the period beginning 24 October 1378 and ending 16 August 1387.

The record further defines the given year as a year of Cancer (*Saratān*), and the question arises "what does this mean?". In every year the Sun appears to us to pass in turn through each of the twelve Zodiacal signs, of which Cancer is the fourth. How, therefore, can any particular year be identified with an individual sign? It can hardly mean that the Sun was in Cancer when the year began, for such a system, of which I have never heard, would if applied to Muhammadan lunar years cause two (or more) successive years to be called after the same sign, inasmuch as the Muhammadan year shifts its beginning back 11 days each year (with an extra margin for leap-years), but the Sun stays a month or so in each sign. If there ever was such a system, the year A. H. 702 would not under it have been a Cancer year, for that year began on 26 August 1302 and the Sun had passed out of Cancer about a month previously. Nor would any single year comprised in the alternatives given above satisfy the condition: they all begin at wrong times, as anyone can see by referring to a Muhammadan Calendar. That conceivable explanation, therefore, must be dismissed.

To my mind the only reasonable explanation seems to involve the existence at that period of some 12-year cycle of year-names following the names of the Zodiacal signs. Of such a system in connection with the Muhammadan Calendar I have never heard; but the Hindus had one, and it seems probable that we have here again a relic of Indian tradition. This Hindu cycle was based on the revolution round the Sun of the planet Jupiter, which takes a little less than twelve of our years, the planet during that period passing through each of the twelve signs and being nearly a year in each. Now the Hindu solar year, which was used for the purpose of this computation, began when the Sun entered the Indian sign corresponding with our Aries, and whatever sign Jupiter happened to be in at that moment, the year then beginning received the name of that sign. Assuming that the writer of the Trengganu record was following a traditional system inherited from Hindu times, there remains the further question whether that system was still understood (by those who used it) to be in relation to the movements of Jupiter, or whether it had degenerated into a merely mechanical naming of the years in succession by names which had ceased to have any relation to astronomical facts. To me the latter alternative seems the less probable one in view of the curious circumstance that we have the name Cancer given in Arabic, not in any traditional Indian form. It looks as if the persons who used it knew that it had an astronomical reference, at any rate. If we are forced to the conclusion that the name had become a merely arbitrary one, there is no point in paying any further attention to it, for it can give no clue to the year intended. This is due to the circumstance that at intervals of 85 or 86 years a sign-name would properly have had to be suppressed because of the fact that in that period Jupiter, owing to his time of staying in any one sign being some days less than the length of our year, gets a whole year behind. As we have no means of knowing when the change to a merely mechanical repetition occurred, if in fact it did occur, there is therefore no possibility of identifying the year by its sign-name.

Supposing, however, that the system was still understood to be in relation with the movements of the planet, how was it worked after the introduction of the Muhammadan Calendar? If the Hindu practice was still followed, the year being named in accordance with the sign in which Jupiter stood at the entrance of the Sun into the Indian representative of Aries, then A. H. 702 becomes impossible, and the same is true of A. H. 708. Neither of the Indian years, beginning on the 25th March, 1302 and 1308, in which these Muhammadan years begin, is a Cancer year under the Indian system. On the other hand, 1327 and 1386 are Cancer years, and it is conceivable that A. H. 728 (which began 17 November 1327) and A. H. 789 (which began 22 January 1387) might have been so styled.

It is possible, however, that the Indian system received a further modification to adapt it to the Muhammadan Calendar. Perhaps the Muhammadan year was named after the sign in which Jupiter stood, not at the last preceding time of the Sun's entry into Aries, but at the moment when the Muhammadan year itself began. That would be a possible and perhaps a natural modification, as the Hindu practice took the initial point of the Indian solar year, so the Islamized method may have taken the beginning of the Muhammadan year as the determining point. In that case A. H. 702 would rank as a Cancer year, A. H. 708 would not, and in each of the periods A. H. 720-729 and 729-789 there would be a year which could have been so styled, viz. A. H. 727 and A. H. 788, which began on 27 November 1326 and 2 February 1386, respectively.

All this is very inconclusive, but it seemed worth while to state the elements of the problem, so far as I understand them, in the hope that something may turn up some day which will help us to decide between all these conceivable alternatives. On general grounds, I am inclined to lean towards the latest possible date. But I am free to confess that this feeling, for it is nothing more, is based on our ignorance of the condition of the Malay Peninsula in the 14th century coupled with the relatively late 13th century evidence for the establishment of Islam as a state religion in Northern Sumatra. That, however, is not tantamount to proof, it is merely calculated to raise some degree of presumption; and if anybody prefers to accept one of the possible earlier dates for the Islamization of Trengganu, it appears to me that on the evidence as it stands at present, it cannot be shown that his view is wrong. Whatever the date may have been, I think the record was made at no long interval after it and there is, therefore, no reason to doubt that it gives a true date, if only we could be sure what that date really is.

I append a few notes on words that stand in need of a little explanation.

A 3. *dĕrma* has one of the meanings, "law", of the Sanskrit *dharma* from which it is derived, *mĕraksa* is from the stem of the Sanskrit verb *rakshati,* "to govern", "to guard", "to protect", or from the corresponding noun *raksha,* "guard", with the ordinary Malay prefix. The Kota Kapur inscription has *mangraksha* with reference to the gods protecting the realm. A 4. *di-bĕnua-ku*: it might be possible to read *aku* or *kau* instead of *ku,* but the spelling is against the first and the sense against the second alternative (in place of which one would anyhow rather expect *mu*): *pĕnĕntu* is a very doubtful reading, assumed to be the agent form of *mĕnĕntukan* (in the sense of formulating or possibly establishing and enforcing). Another conceivable reading would be *pĕbantu* or *pĕnbantu,* "those who help or support"; either form would be irregular in spelling, though not much worse than the spelling of Trengganu in A 9. *Raja mandalika* literally means "regional rajas", (from Sanskrit *māndalika,* "relating to a region", *mandalam*). Whether these are local independent rulers as opposed to the Khalifah of All Islam, or territorial chiefs within the State of Trengganu, seems uncertain. But *mandalika* in B 12 refers to territorial chiefs. The Nāgarakrĕtāgama (1365 A. D.) uses the term to describe the "vassal" states of Majapahit, of which it claims Trengganu as one.

A. 6. *bĕhumi* is nearer to the Sanskrit *bhūmi* than modern *bumi. pĕnĕntua*: the reading and meaning of this or the conceivable alternative *pĕnbantua* stand or fall with the doubtful *pĕnĕntu* of A 4. The termination *a* for *an* may be due to local dialect (like the spelling of *bujan* for *bujang* in B. 8, C. 1-3). But the Kota Kapur inscription has *kawuatā-nya* as the noun of action of *wuat,* modern *buat,* "to do", where we should now have *pĕrbuatan-nya.*

A. 8. *bĕrbajiki* is doubtful, both in reading and in sense. I have attempted to interpret it on the assumption that a verb with the suffix *i* could (like some modern verbs in *kan*) take both accusative and dative objects without more, as *i* was originally itself a preposition.

A. 9. The spelling *Tuhan* was not always reserved for the Deity. It occurs in a Sumatran inscription of 1347 A. D. in the title of a minister of State. *mĕdudokkan* may be due to local dialect, or it may be an engraver's error for *mĕndudokkan; tamra,* which evidently denotes the record itself (and in this particular case could have been rendered "edict") is probably an abbreviation of the Sanskrit *tāmraśāsana,* "an edict, etc., inscribed on copper", which was the usual Indian way, alternatively with stone. I imagine that the long association of the word with royal edicts, grants, etc., coupled with ignorance of its true etymological meaning, led to its abbreviation and to its use to describe this stone record. Trengganu is spelt in this line with a dental (*n*) instead of the velar 'nasal (*ng*). *adi-pĕrtama* (Sanskrit *ādi* beginning, *prathama,* "first") is a doubtful reading, at any rate as regards the *adi.*

A. 10. *sasanakala* (Sanskrit *śāsanam,* " Command, religion ", *Kāla,* " time ") seems to be a certain reading.

B 7. I take *balachara* to be a compound of Sanskrit *bāla,* " childish, foolish ", and *ācāra,* " conduct " (also " rule, ordinance " as in D 5 *achara*).

B 9. The spelling *rautan* (with *alif*) seems to indicate a pronunciation as in *raut,* more archaic than modern *rotan.*

B 10. *atawa* (Sanskrit *utavā*) should perhaps be written *utawa,* and in any case is more archaic than modern *atau.*

B 11. *hĕmbalang* occurs in Javanese in the sense of " pelting, throwing ", stones, etc. It is perhaps significant that the record does not use the technical Arabic term, which would probably not have been generally understood at this period.

B 12. Is obscure, there being some doubt as to the reading. It is to be borne in mind that Islamic law requires for the proof of sexual offences of the kind contemplated by the record the evidence of four lawful male eye-witnesses of the act, or alternatively a confesion, which the culprit may subsequently retract. Possibly the line means that if the culprit denies an offence which would involve stoning, then he is still to be fined. Such a case might arise if there were not four witnesses as the law requires, but it was morally certain that the offence had in fact been committed. The commutation of a penalty into a money payment seems to be a concession to Indonesian ideas, not strict Muhammadan law. The top stroke of the second *jika* in B 12 has been omitted, making the *k* look like *l.*

C 3. The reading *tĕlua* is doubtful; I take the word to be a variant of *tua-tua,* from *tua,* " old ", with the sense of *kĕtua,* "(village) elder."

C 4. *bĕndara* (spelt, like *mĕrdeka,* in a less archaic form than in modern Malay) here has its original sense of " store-house, treasury " (Sanskrit *bhāndāra,* for *bhāndāgāra*). The use of *bĕndahara* as a title is due to its having been preceded by *dato'* (like our " Lord of the Treasury ").

C. 6. After *balachara* I think *itu kĕna dĕnda* seem probable readings; *tida* (also in D 1, 2, 4) agrees with the *tīda* of the Kota Kapur inscription and seems to show that the glottal stop (represented by *k* in modern *tidak*) is a later accretion, as it also is in *dato'* (Kota Kapur *dātu*).

D 2. After *tida* I doubtfully conjecture *tĕpĕrbeya,* cf. Javanese *beya,* " expenses, tolls ", also a verb meaning to pay such expenses. (It is supposed to come from Sanskrit *vyaya,* " expenditure ").

D 3. *pĕmain* is a doubtful reading.

A grammatical point worthy of mention is the use of the preposition *di* before words of time (A 10), whereas good modern usage (now, however, not always observed) would confine it to words of place.

I need hardly add, after what has been said above, that I regard the translation I have proposed as being in many respects tentative and provisional.

Karamat: sacred places and persons in Malaya.

By R. O. WINSTEDT M.A., D. LITT. (OXON.)

The study of sacred places and persons (*karamat*) in Malaya has hardly received the attention it deserves. Research in this field throws light not only on the nature-worship and ancestor-worship of the primitive Malays but also on that facile canonization of Muslim saints living and dead that marks the Indian source from which Islam came originally to the Peninsula.

The traditions as to the fifty one sacred places and persons recorded here have led to a classification of *karamat* under several heads: (1) natural objects such as rocks, hilltops, capes, whirlpools and so on; (2) sacred tigers and crocodiles; (3) graves of magicians; (4) graves of the founders of settlements; (5) graves of Muslim saints, and (6) living Muslim saints. In my second example a dead Sayid has been dragged in of recent years to hallow the nature-worship centring round Pulau Aur. Muslim jins are often used for the same object:—examples (4), (6) and (8). Syncretism has made the kernel of many traditions hard to discover. Living saints often bear the hallmark of some physical peculiarity: one has a hairy uvula, another is a dwarf, another is short-sighted, another has half his tongue black. All have mysterious powers and some can perform miracles. One mark of a dead saint is the saffron-like fairness of his corpse: another the mysterious separation of the head and foot stones of his grave.

The traditions here collected contain many details of interest to the student of primitive religion and magic and it is to be hoped that other enquirers may add to these records of the *karamat* of Malaya.

Further material is to be found in W. W. Skeat's "Malay Magic", pages 61-71, 153, 163-165, 283.

Natural objects—rocks, hill-tops, capes, whirlpool.

(1) In the Perak river near a deserted village, Labit, and opposite Mount Berembun stands a large isolated rock, above a rapid known as the Bat's Elbow. The rock is called Gaffer Idol (To' Berhala). From Labit to Mt. Berembun is stretched a magic branch that lies at the bottom of the Perak river and rises, mottled and mossy, to the surface only when the Gaffer wants to use it as a bridge to his rock in midstream. For Gaffer Idol and his wife Embun originally were mortals. One day the wife went to this huge rock to bathe and vanished, carried off by the ghosts of her ancestors. Her husband bewailed her fate and she came and carried him off too. The Gaffer used to keep a pair of sambhur deer and a pair of barking deer (each with gold neck-chains), a white crocodile, and a white crow: prayer to his sacred rock will render these animals visible at times. Neglected, the Gaffer can cause sickness among settlers and passers-by, and the wrecking of boats in the rapid. If his help is required to heal the sick, the yellow thread, the betel quid and the cooling water to be used as medicine must be laid on his rock for half an hour so that the Gaffer may come invisibly and bless them. Thank-offerings also are laid on the rock only for half an hour. *Pawangs* invoke his aid to recover wreckage. They can find the spot where it lies by casting a handful of rice on the stream where the boat sank, and following the progress of the grain till it revolves: at that place the sunken boat lies.

The kernel of this *karamat* is a rock and the legend that anthropomorphism has woven round it embraces a sacred hilltop also., Mt. Berembun.

(**2**) In the China Sea is the Island of the Bamboo, Pulau Aur. Formerly it was only a rock, out of which grew not any plant commonly met in salt water but a bamboo with two joints. Once the five sons of an Arab Sayid, who had settled at Daik, were sailing in search of fortune when the eldest died at sea. His brothers committed him to the waters along with two joints of bamboo, as symbols of grave-stones. At their prayer the rocky islet arose. Sailors in want of a favouring wind make offerings of rice and goat's flesh, and hang up white and yellow rags on the island. Then if they sail away fasting and with their thoughts fixed on this sacred place they will get fair winds and a prosperous voyage.

(**3**) In the district of Lumut in the Dindings there is a rock lying on a larger rock, which has been a sacred place for fifty years or more. Once there was a pious Patani Malay in the district, called Dato' Sulong. On several occasions he disappeared and on his return said he had been visiting this Hanging Rock (*Batu Bĕrtenggek*). One day he vanished for ever. Later he informed the local *pawang* in a dream that the Hanging Rock was sacred and that any one guilty of unseemly language or conduct in its neighbourhood would fall sick. A pert boy tested the truth of the tale and suffered from fever and vomiting until his father vowed to offer at the rock seven plates of rice and seven black-skinned fowls. Chinese as well as Malays revere the spot.

(**4**) At the foot of Gunong Mesah near Gopeng in Perak there is a cave with several hanging rocks. One night the local *pawang* dreamt that a Muslim jin, bearded and attired in Arab dress, spoke to him, saying that one of the rocks was his dwelling-place and that people should not defile the cave. A sceptical boy tried the experiment and at once got fever. By divination from a candle set on the edge of an ewer of water the *pawang* discovered the patient had been crossed (*kĕtĕgoran*) by a spirit downstream —where the cave was. The patient confessed and was cured by an offering of rice and a black fowl to the jin in the cave. Today all who pass the place exclaim, "Greetings, grandsire. Your children ask leave to pass. Forgive them for what thay take or brush against, for they have no manners."

(**5**) Once upon a time a pelican was drinking on the brink of the Jelai river at Kuala Lipis, Pahang, when there passed a mythical giant, Sang Kelembai, who changed all he greeted into stone. So the pelican was turned into a bird-shaped rock and has given its name to a pool (*Lubok Batu Burong*). The stone is sacred and rags are hung upon it to this day. In the early days of British protection a white man tested its sanctity by firing shots at it. It showed no marks or damage.

(**6**) In Elephant Hill (*Gunong Gajah*), near Kuala Dipang in Kinta, Perak, there is a cave containing rocks and stones which once were people engaged in a feast, when Sang Gedumbai (= Kelembai) passed and by his greeting petrified them. An old midwife lived at the edge of the cave. Once she vanished for a week and returned at last, sallying out of the jungle with a basketful of various foods. She said a Muslim jin had fetched her to deliver his wife at the top of the hill. There too was a town with shops, where the jin had bought presents for her. He had told her to appeal to him in trouble when he would visit her in dreams. In later times a local magician reported that the tale was true and that the child delivered had married a mortal. The sanctity of the hill was confirmed by the fact that the vow of an offering by the parent of a sick child caused its recovery.

(**7**) At Merlimau in Malacca about four miles from the sea there stood a large sacred rock called the Junk (*Batu Jong*) until in 1920 A. D. the Public Works Department broke it up to make the Jasin road. Once upon a time a naughty boy, Ragam, ran away from home till he came to the sea-shore. Seeing a junk pass gay with flags and music he took off his coat and waved. The captain stopped his ship and took the boy to his mistress, the princess of Ledang Island. She brought him up and eventually made him captain of her ship. Some years later, when his crew were ashore, an old shabby woman hearing the name of their captain declared he must be her lost son. When she was taken aboard, Nakhoda Ragam failed to recognize her and disowned her. Weeping she returned. But the petrified remains of the junk and its anchor, of an elephant that was on board and of the clothes of the crew remained till 1920 as witness to the fate that overtook the unfilial captain. All this happened when sea lapped the foot of Gunong Ledang.

(**8**) Near the village of Batu Kikir in the Kuala Pilah district there is a peak like an ant-hill in the Melintang range. It is called Bukit Merbau after a tall *mĕrbau* tree that crowns it. Thither a headman once led his people to decide a case between a man, Haji Sa'iran, and his fellow-villagers, who, falsely, the Haji said, declared that his ne'er-do-well son, Long, the child of his old age, was a bastard. Long alone of the party fainted and failed to reach the top. On the summit was discovered a flat stone with a hollow full of water. Its warder is a Muslim jin, called Green Turban, who is accompanied by a were-tiger, Dato' Negun. If any evil is about to overtake or any alien tiger about to enter the district, this ghost tiger roams round it roaring for three nights. People make vows at this sacred place for recovery from sickness, for plentiful crops and so on. Formerly incense and invocations would produce magic crockery on the summit for the use of those believers who lacked plates and dishes for a feast. But borrowers failed to return them or returned cracked ware for good. So this miracle has ceased!

(**9**) On the top of Gunong Rembau are rocks, which once upon a time were the palace, the goatpen and the fowl-house of a prince. There also are two ponds, the Footprint pond and the Cooking Pot pond. Many vow to present offerings at this sacred spot in return for riches or good crops. If a request is going to be answered, there will be water in the ponds: if it is going to be refused, the water will at once dry up. A fierce wind will strip stolen clothes off any dishonest person who scales the mountain. Formerly the mountain was an island, where a Pasai prince and his consort, Princess Manila, landed and settled. Gradually dry land silted around it and the prince's settlement was peopled with aboriginal Malays. The prince retired to live a hermit's life at Cape Rachado but his consort still lives atop Gunong Rembau, whence in one step she can visit her husband. Some detect at this cape the footprints of this princess, who if invoked will step down from her hill to push off ships ashore on the promontory. Again. At the extremity of Cape Rachado there is a whirl-pool, about a chain square, inhabited by a female Muslim jin, who can cause and cure sickness.

(**10**) There was an old *pawang*, Nenek Anggam, of Sungai Baharu, Malacca to whom a Muslim saint revealed in a dream that at the confines of the parish there was a holy spot marked by a tall tree and a great rock bearing the marks of a tigress and her cubs. It lies at the source of the river that irrigates the local rice-fields. It is called *Karamat Dato' Budi* and prayers are said there yearly before the rice seed is planted. A gold-mine was once opened in the neighbourhood but the coolies fell sick or were killed by tigers: the Chinese headman dreamt that the spirit of the *karamat* demanded seven women, *primae gravidae*, and work stopped. After the harvest a great feast is held, scraps of the different sorts of food being left as offerings.

(**11**) In Market street, Teluk Anson, stands a tall *pulai* tree. When two Indian coolies were ordered to fell it, the hacks they made by day closed up by night and they themselves died. Then a Malay *pawang* dreamt it was a sacred tree, where ghosts and spirits sport, and ever since all races, Malays, Chinese, Indians, have laid offerings there.

(**12**) An old couple had seven sons. One day they went to bathe in the Muar river and did not return. Only their clothes were found. But a bearded figure in Arab clothes visited their father in a dream and told him that his sons had been transformed into saints with invisible bodies like fairies and one of them guarded Mensira. Now at that spot is a huge *mĕnsira* tree unto this day. Under it are often met a tiger, a crocodile, snakes and scorpions, to kill any one of which would bring disaster on the parish. People make vows there. Formerly incense and prayer would produce magic plates for those in need, but this miracle has ceased, because, instead of returning the shards of any broken, borrowers replaced them with whole but ordinary plates.

(**13**) A *pawang* lived on Gunong Berembun in Negri Sembilan. He had seven sons, to whom he taught his magic. Finally he sent them to practice austerities (*bĕrtapa*) beside a stream. After twice seven days he searched for them. They had disappeared. But a bearded fairy prince (*raja orang bunyian*) in Arab dress visited him in a dream and told how his sons had become saints. They had all plunged into the stream and the youngest had risen to the surface at Kuala Sungai Dioh. To guard the sacred spot he haunts are four warders: a lame tiger that rules the jungle, a white crocodile and a white snake which rule the water, a white gibbon that rules beasts and men. The white gibbon was once a princess of Pagar Ruyong and was turned into a gibbon for breaking troth with Anggun Che Tunggal! The lame tiger was captured by the saint of Kuala Sungai Dioh from a band of tigers, guardians of the sacred place on Gunong Ledang, who had come to attack the *karamat* at Kuala Sungai Dioh. Having learnt their purpose in the form of a cat, he went behind a *bĕrtam* bush and made his body as big as a mountain; then he chased the tigers so that their rush broke a pass through a hill, still called Bukit Putus; one of them he captured and made a warder of his domain. A Sakai saw all this happen. No *pawang* will let his people wash mosquito-curtain or curry-stone in a river above a sacred place, because the white crocodile and the white snake once slew a couple who defiled their river and inconvenienced their fish by doing so. The white gibbon was hooting at the time. So pawangs say the hoot of the gibbon at midday betokens the death of a man by violence. Offerings are made, incense burnt and trays of food hung on a certain twisted root at Kuala Dioh. If a sick man recovers, he fulfils his vow by offering white and black broth, a black fowl and a portrait of himself made of dough. At the beginning of the planting season a mock combat with calladium stems takes place there, a buffalo is slaughtered, and a portion of blood and flesh given to each person to take away and plant in the corner of his or her field as an offering to earth spirits.

(**14**) A couple living on Ayer Hitam hill, Penang, had seven virgin daughters. Every day the girls took their goats to graze till one day three of the girls went astray and took refuge in a cave. The youngest, Che Nah, was lost on the return the following day and her foot became caught in a crevice. An old man found her there but her body had turned to stone. She had become a *karamat*. Her father prayed to her to relieve his poverty. In a dream she told him to dig at the foot of a tree where he would find gold. A hut has been built over the sacred stone. Malays, Tamils, Indians and Eurasians frequent the place. It is known as *Karamat Che Nah* or as *Karamat tujoh bĕradek*.

A variant account states that Che Nah died at home but appeared to her sisters in a dream, instructing that her body should not be buried but cast into the jungle. On returning to the spot they found it occupied by their sister in the form of a white tigress. In a dream she warned her sisters that they should remove to Pulau Tikus Kechil, where now there is another famous *karamat*. After they had removed, an old man Harun took offerings to the tigress. When he died, the beast disappeared.

(**15**) Between Tambun and Pulai in Kinta there is a rock bearing a mark which has made it a *karamat*. It is the footprint of a famous medicine-man, Pawang Rejab. One day he went, as was his custom, to fossick for tin. With him he took his son, whom he warned not to express surprise at what he saw. But when his father started to work, he was so amazed that he cried out, "Why, father, you split rock easily with a twig (*puchok dĕdap*)! Other folk would find it hard to split with iron." His father did not hear. So the boy repeated this remark three times. Straightway the Pawang uttered a loud cry, sprang and slipped along the rock to seize his son by his long lock of hair, whereupon they both vanished. The mark where his foot slipped is still on the sacred rock. Soon afterwards the Pawang's wife and property also vanished.

(**16**) The *karamat* at Paroï between Seremban and Bukit Putus embraces traditions of hills, of a well now filled up but due originally to the footprint of a sacred white elephant, of seven or eight families who founded the village beside the well and of eight Arab missionaries who sailed from Sumatra to Patani and Kedah (wherefore those countries are celebrated for religion to this day), fared then to the top of Bukit Putus (where today there is a hut for folk to pay their vows in) and so down to the sacred well at Paroï. A Malay saw seven of them dive into the well, whence they never rose again:—for they came up at the Seven Hills (*Bukit tujoh*) near Sri Menanti, so that all who approach those hills today say "Greetings, Gaffers! Your grandchild would pass." The eighth Arab stayed on the brink and told the Malay all about himself and his fellows so that the legend might be preserved! The next morning he too dived into the well and vanished, to become the *karamat* of Paroï. One account makes him leader of an army of were-tigers. And in Negri Sembilan any one angry with his cattle utters the imprecation, "May the Dato Paroï attack you!" Malays, Hindus and Chinese revere the spot, which in 1922 was visited by H. H. the Yang di-pertuan.

Sacred Tigers and Crocodiles.

(**17**) When Tun Ali (died 1847) ruled Pahang, there lived in Chini lake a huge crocodile called the Luck (*sĕri*) of Pahang. He was betrothed but his betrothed was carried off by another crocodile, called the Luck of Cambodia. Transforming himself into a human pilgrim or Haji, the Luck of Pahang took ship to the sea of Cambodia where resuming his proper shape he leapt into the water and sought his rival. His rival took shelter in a rocky cave. Dashing after him the Luck of Pahang hurt himself and so was worsted in the encounter. He returned to Pahang, hanging on to the rudder of a ship but could ascend the river no further than Pasir Panjang near the estuary. A *pawang* about to go to Chini lake dreamt that the Luck of Pahang bade him inform the crocodiles there that they must go down to Pasir Panjang to meet their dying lord. All the crocodiles of the Pahang river and its tributaries went down. Tun Ali, ruler of Pahang, also had a dream, in which the Luck of Pahang asked to be shrouded and buried at Pasir Panjang. This his highness did, using 70 rolls of linen. White rags and palm blossoms are hung beside the grave and vows are made to bathe the sick there if in answer to their friends' invocations to the sacred crocodile they regain their health.

(**18**) About 30 years ago a tiger frequented a cave in Gunong Kurau near Kampong Sungai Akar, Perak. He molested no one and over his resting-place in the cave was what looked like curtains of stone. Three nights running one Haji Muhammad Salleh dreamt that this tiger was sacred. And when his child fell ill, he vowed that if the infant recovered he would bathe it at the door of the cave, sacrificing a white goat and burning incense. This he did, unharmed by its inhabitant. Today the tiger is very old and can hardly crawl. But all the villagers believe he is sacred.

Graves of Magicians.

(**19**) At Bukit Serudong in Rembau there is the sacred grave of a famous *pawang*, To' Anggut, to which folk resort for recovery from sickness, for good crops or if any of their relations have been arrested by the myrmidons of the law:—it is guarded by a were-tiger, the familiar of local medicine-men, as once it was the familiar of To' Anggut. This worthy is reputed to have founded the custom of mock combats before clearing the rice-fields. For seven days he visited all homesteads in a procession headed by a spearsman and seven flag-carriers. On the last day a white and a black goat were sacrificed, and the combat with calladium stems took place. He also instituted lustration for the sick and tied threads and lead on their wrists. In epidemics he let no one cut down vegetation, or slay beasts for seven days; no one might leave the house of the sick or talk to visitors or strangers.

(**20**) At Bagan Tambang, Teluk Ayer Tawar, in Province Wellesley there died on the 25th June 1817 a famous Pawang Hitam the son of Haji Abdul-Karim, aged 98 years. One Friday night an adult grandson dreamt that the deceased had become a *karamat.* Soon afterwards there was a theft in the village. Diviners failed to trace the stolen goods. Then their owner vowed to offer saffron rice and a white cock at the Pawang's tomb, it he would help to find them. Forthwith the idea came that the goods were buried in the sand at the foot of a certain tall tree. There, to be sure, they were unearthed, the thief not having had time to remove them. Vows at this tomb will also help the sick.

(**21**) About 100 years ago at Kemunting near Taiping there lived an old Achehnese midwife or medicine-woman called To' Bidan Lanjut, to whose grave people of all races resort asking for offspring or health or wealth. Her grave is under *a huge tree* on which supplicants hang rags or stones. An Indian Muslim is employed by the Chinese miners to look after this holy place.

Graves of founders of settlements.

(**22**) Among the founders of Trong in Perak was a famous medicine-man, Johan. Vows are made at his grave, incense burnt there and a curtained frame hung over it.

(**23**) In the parish of Pengkalan Baharu in the Dindings there is a sacred place in the middle of a plain (*Karamat To' Padang*), reputed to be the grave of a Bugis prince, Johan. Gangga Shah Johan, (who was worsted by Raja Suran according to the " Malay Annals ") invited Johan to a combat with his son, the winner of which was to wed his niece Princess Puchok Kelumpang. But the defeated prince persuaded his father's vizier to fence with his Bugis rival, and Johan was slain by *a stream* (called *Alur darah* 'the gully of blood') *where the water still flows red.* The grave with an Arabic inscription still stands beside the Bruas river. A were-tiger there keeps off elephants and grouting pigs; a crocodile is warder of the adjacent river-bank; a white cock dusts the grave with his wings. Beside it is *a tall fig tree;* a Chinaman started to fell it for a planter but was struck with paralysis and did not recover till his comrades laid offerings before the tree.

The ancient grave of an unknown man seems to have started this legend.

(**24**) Near the Malay school at Salak Nama, Rembau, is the sacred grave of Dato' Sri Maharaja (younger brother of Dato' Laut), one of the founders of Rembau. Tradition says that he had a hairy tongue; whenever he spoke, the hairs fell into his lap; when he had finished talking, he replaced them in his mouth!

(**25**) A poor Achinese fisherman having caught nothing visited an island where a saint seated on a white rock gave him a twig which would always attract fish. So he became rich and was called Dato' Pulau, "Island Chief." He left Sumatra for Negri Sembilan where he settled and married at Kampong Glong. Later he founded Pengacheh, where he became famous as a medicine-man. He had two daughters, Kudeh and Machang, the ancestresses of the two divisions of the local Achinese tribe (*anak Acheh darat* and *anak Acheh baroh*). The grave of this founder and medicine-man is sacred, the resort of suppliants.

The wife of this chief ran away from him, after accidentally burning her bosom in a pan full of hot sugar. She hid by the riverside, where a white crocodile came and licked it and made it well. So to this day the Glong tribe (*suku Glong*) shroud and bury dead crocodiles.

(**26**) Three brothers, members of the royal house of Pontianak migrated first to Bangka and then in the time of Sultan Husain (1809 A. D.) to a spot on the coast of Singapore harbour. The eldest was named Lasa, the youngest Bujang and the other Lasam. As they were making a clearing, a storm came accompanied by great darkness. So they called the place Siglap! Immigrants from Riau and Lingga swelled the population. So, Lasa having returned to Pontianak, the English made Lasam chief (Penghulu) of the place. Once a Bugis, Wak Biak, ran amuck, killing several people. No one could capture him. Lasam arrested him single-handed. The police let him escape and he killed more people. Lasam again captured him. People began to regard their Penghulu as sacred (*karamat*). Lasam died and the colour of the corpse was like saffron. This confirmed his sanctity and vows are still paid at his grave.

(**27**) Several hundred years ago eight holy men came to Pahang from Minangkabau, including To' Tun Bahau, To' Tun Cheruis, To' Tun Bandan, To' Panglima Mat Kasim. The last settled at Segenting near Kuala Cheka and had four sons, whose sacred graves are at Yong Blit, Yong Kudong, Aur Gading and Kampong Atir. Most sacred of all is the grave of the father, *karamat Segenting*. On his tomb is a stone, which was the water-vessel (*gopong*) he used for his religious ablutions. Alive he kept two crocodiles, with rattan cords through their noses. These crocodiles appear to persons who fail to fulfil vows at their master's tomb. The great flood of 1885 covered all the surrounding land but not that grave. Goats are slaughtered and white cocks loosed beside the tomb by those whose prayers there have been answered.

Graves of Muslim Saints.

(**28**) In former days, the route into Perak was from Bruas to the Hill of the Achinese Grave (*changkat kubor Acheh*) in the parish of Blanja. Once at that Hill there was a large settlement with a mosque. A princess lived there, betrothed to a Bruas trader, Muda Che' Maalim. But another Bruas trader, Che' Idin, came in his absence and forcibly married her. A fight ensued. Che' Maalim entering the mosque in pursuit of fugitives, saw its keeper (*siak*) behind a pillar and hacked at him, where-upon he vanished mysteriously. The two rival lovers fought and perished. Soon afterwards a man dreamt that To' Siak had become a saint (*karamat*) and founded an invisible settlement, where the material settlement wasted by fighting had sunk back into the jungle. Later another dream revealed that To' Siak had removed to Changkat Kuala Parah on the Perak river. A tiger and a crocodile guard the place sacred to him.

Syncretism has composed this *karamat* of hills, a founder, a saint and a shadowy tradition of a grave.

(**29**) Thirty years ago a pious Muslim trader, Muhammad Rawi, opened a shop in Gopeng, Perak, and prospered. He went alone to Mecca and on his return was styled Shaikh. Later at his funeral rain fell, though the sun was shining. A grandson of the deceased fell very ill and his parents vowed to bathe him at the Shaikh's tomb if he recovered. At once the child got well and the tomb became a sacred spot where vows are made.

(**30**) Two hundred years ago at Bukit Tersan near Raub lived a very pious man possessed of magical arts. He and his family are buried there in tombs waist-high. The saint is known as Dato' Karamat. The sick make vows to bathe there, hang flags and release a white fowl on the grave if they recover. Those who make vows, at once have white flags hung here as symbols that a vow has been made. Some drink the water from the crevices of the grave-stones.

(**31**) A pious Achinese, To' Pakeh, settled at Nibong Tebal and died there in an odour of sanctity. His grave at Matang Pauh is still honoured. His son, To' Baik, followed his example. One day he went down to the Krian river to get water for his ritual ablutions. A crocodile seized him. But five or six times he rose to the surface, ejaculating, "It is well" (*baik*!). Only his left leg was recovered and duly buried near Nibong Tebal. A villager dreamt that the deceased had become a saint(*karamat*). The crocodile, which still lives, is also regarded as sacred. At To' Baik's tomb Malays, Indians and Chinese make vows and supplication.

(**32**) At Kampong Jalan Baharu, Penang, is the sacred grave of Dato' Janggut, who was born, the youngest of five children, in 1824 A. D. and died in 1884. He had a great name as a religious teacher. After his burial a voice reciting the Quran was heard from his grave. One Friday night a light as of fire shone on the tomb and a figure, the exact likeness of To' Janggut, was sitting there reading a religious book. The tomb became a sacred place. Suppliants offer candles and money there. All who pass by or wish to take any of the money lying there, must invoke the saint thrice for permission, or sickness will overtake them.

(**33**) There was a poor pious keeper of the mosque at the village of Lahar Ikan Mati in Province Wellesley, called Lebai Qadir. When he died, the *imam* went to the mosque one night to pray for his soul. He fell asleep and Lebai Qadir visited him in a dream and told him that he would answer the vows of all who invoked him. The sick vow to offer saffron rice, slaughter a goat or release a white fowl at his tomb, if they recover.

(**34**) At Ampang three miles from Kuala Lumpur is the sacred tomb of a pious Sumatran immigrant, To' Janggut, who kept a pony and cattle there nearly fifty years ago. When he died, his pony, his buffalo and his cow seemed to go mad and refused food and drink, sleeping at night by the grave. There the pony died first and next the cow and the buffalo. People marvelled and surmised that the deceased was a saint. The fulfilment of prayers in response to vows made there confirmed this belief. Rich Chinese have built a shrine over the grave, so that it is known as *Karamat Tangga China*. A yellow mosquito-net is hung over it but renewed at short intervals, as suppliants take scraps of it to make amulets.

Another account of this saint is given below (42).

(**35**) In the last century a pious Muslim teacher, Shaikh Abdul-Ghani settled at Gopeng. One day after his death a pupil of his fell into financial trouble and invoked his dead teacher, vowing, "If I am released from this trouble, I will bring flags and water and repair the tomb of my master." His prayer was answered, and the Shaikh's tomb became a sacred place.

(**36**) At Ketapang in the district of Pekan, Pahang, is the sacred grave (*makam To' Panjang*) of a pious Malay, Jaafar, who never married. After he died, the head and foot stones of his grave separated to a length of 15 feet. So he was accounted a saint and vows are made for his help.

(**37**) A very poor but pious couple lived in the parish of Serandu, Pahang. One Friday the husband died on his praying mat. The wife went to beg a shroud. When she returned with assistance, a light was seen to be shining from the navel of the corpse. Soon after the wife died, also on a Friday. A man passing the graves saw that tall stones adorned them and curtains, and that an angel in the form of an aged man sat within the curtains. The passer-by enquired, what he did. The angel replied, "I guard this sacred tomb." Said the man, "If indeed it be sacred, let the stones be parted." The stones parted, making the grave 30 feet long. It is called *Karamat To' Panjang, Bruas* and is at Kampong Marhum in the district of Kuala Pahang. All races respect it.

(38) At Kampong Baharu, beside a branch of the Dinding River, is the grave of a pious Chinese convert to Islam, guarded by a crocodile who upsets the boats of the profane and irreverent. Once a rubber-planter ordered his coolies to throw rubbish round the grave. He died and most of the coolies fell sick. Villagers then cleaned up the site and found several remarkable objects:—in the middle of the grave a stone three feet high and six feet round, larger at the base than the top; beside the river bank, a large flat stone like a mat, two large and several smaller wells and a betel-chewer's stone spittoon.

(It is just possible that this spot might be of interest to an archaeologist?)

(39) At Kampong Gedang in the Jelebu district is the sacred grave of To' Rabun, who was born short-sighted (as his name implies) forty years ago and brought his needy parents luck and riches. They died and then their child's presence made the trees and crops of his guardian flourish. To' Rabun also died at the age of eight. His grave was forgotten till recently the village headman dreamt that the child visited him in a dream, announced that having reached the age of 40 he was a saint, and that his grave would be discovered at the end of a certain gully. There the dreamer found it, under a huge *lĕban* tree. Now folk make supplications to the saint and hang yellow cloth in the sacred tree in his keeping. Many revere the tree rather than the grave. Recently a tiger caused much loss in the neighbourhood till an old man dreamt the tiger was the saint, who enraged at the villagers' lack of faith in him had taken this form.

Living Saints.

(40) In Mecca there lived once a pious religious teacher, Shaikh Muhammad, who had a devoted pupil, Shaikh Ahmad. They sailed to Java, where they made many converts and Shaikh Muhammad received the title of Shaikh Mutaram. A year later they came to Mecca, where their shining countenances and the efficacy of their prayers for the sick earned them the reputation of living saints. They said they would die in Malacca and both asked to be buried on the top of Bukit Gedong. Both died at the same time and were buried, as they had desired, Shaikh Mutaram on the right of his friend. A pupil of Shaikh Mutaram dreamt that his master had become a saint and going to the hilltop discovered that the distance between the two graves and between their headstones and footstones had grown! He prayed that if his dream were true, a strange snake and a strange bird might appear. Straightway they appeared but vanished when he prayed. To this day these sacred graves are honoured by suppliants.

(41) About 1880 A. D. there came to Klang an Arab, Shaikh Muhammad Ali, said by some to have been a kinsman of Habib Nob whose sacred tomb stands on a hill at Teluk Ayer, in Singapore. He had the gift of seeing the future and all his prophecies came true. He could read thoughts and he cured the sick merely by the words, "Be well." His uvula was hairy and he clipped it once a week. In his life he became a saint and his tomb near Simpang Lima, Klang, is the resort of those who want children or health. A way to test if the dead saint will cause a vow to be fulfilled is to take a stick and say, 'If thou wilt help me, let this stick grow longer': if help is to be forthcoming, it will lengthen at once. All races make vows at this tomb.

(**42**) There was a poor pious Sumatran, Shaikh Taih, who wandered about Selangor asking alms and living at times as a hermit. Once he lived as a hermit at Batang Kali for seven days. Wherever he did this has become a sacred spot (*karamat*). He always read as he walked. House or mosque he would enter by one door and always leave by another or through a window. If he came across any article lying right side up he would turn it bottom upwards: any article lying bottom upwards he would place right side up, saying "It must be tired of one position"! His prayer could revive the sick. The alms people gave to him he distributed to the poor. He was recognized as a saint. He settled at Tangga China and died there where his grave is revered as a sacred place.

(**43**) At Jeram in Selangor, there lived a pious old Javanese, Lebai Husain. Once when he was about to go to Mecca, all his money was stolen. Soon afterwards he said to his children, "Tonight I go to Mecca" and forthwith vanished. At morning prayer he reappeared with shining face and a sweet smell. He got to care little for food and drink and raiment and he prayed much. One day he prophesied that in three days time a shoal of whales would be cast up on the beach. This happened and the English collected skin and skeleton of one whale. Another time a woman brought an infant blind in one eye. Before she spoke he divined her purpose. With his spittle he cured the child's sight. A man complained of the theft of his goods. "On Friday at dawn the thief will lay them by your house-ladder" said Lebai Husain and his words came true. While alive he was accounted a saint and his tomb is a place of pilgrimage for all races.

(**44**) A pious Javanese goldsmith, Pa' Tukang Rena, settled at Serkam in Malacca and married there. One day digging his garden he struck a large lump of gold which however turned the colour of coal. He died and his wife sold the property. The eldest son of the buyer, and his pious wife, Che Puteh, built a house opposite the tomb of the dead goldsmith. Che' Puteh dreamt that a bearded saint in Arab dress appeared and said to her, "Guard my tomb in your garden and you shall have your reward." This she did and burnt incense there every Thursday night. One day seven snakes were descried in a bunch on the roof of Che' Puteh's house. After a while they vanished and two hours later dollars and silver and copper coins rained from the roof every quarter of an hour for a whole hour. Che' Puteh fainted. Those present prayed, "If in truth here is the tomb of a saint (*wali*), may this woman recover." Straightway she revived. After that all races believed in the sanctity of the grave but suppliants must use Che' Puteh as an intermediary, and tell her their need, whereupon she will light tapers and burn incense at the tomb. Che' Puteh herself has become a living saint (*karamat hidup*) and wears yellow robes every day. People give her many offerings!

(**45**) Formerly there lived at Chembong in the Rembau district a very poor pious orphan, called Lebai Janggut. One day he fell into a trance lasting several hours. On recovery he discoursed of the pillars of Islam, of divination, of the places in the neighbourhood frequented by Muslim genies and the way to placate them. People said, 'He has become a saint' and honoured him. Many besought him for amulets and medicine. Once he persuaded the villagers to build a mosque of bricks (*masjid tanah*). For drum he bade them get a tree-trunk thirty feet long. When the trunk was bored and ready, thirty men failed to lift it, till Lebai Janggut waved over it seven times. On Thursday evenings and feast days it sounded of its own accord. In the mosque at that time was a basket of a hundred plates not of mortal fashioning. To this day on Fridays and other days people pay their vows to the dead saint.

(**46**) At Bukit Tunjang in Kedah there lived a very pious man, To' Alim. His person was fair; his teeth, his nails and half his tongue were black. For his ritual ablutions he used forty four cans of water. He wore seven layers of raiment, like his grandfather To' Dahman, who was also a *karamat*. On a Thursday night in A. H. 1340 he died. The same night he informed the Sultan of Kedah of the occurrence in a dream and bade His Highness invoke him if ever there were trouble in the land. The Sultan attended his obsequies. He was buried on the top of Bukit Tunjang. His gravestone is fifteen feet long and the grave is known as the sacred place of the White Stone (*Karamat Batu Puteh*). Every year his descendants fix beside it in a tall tree a revolving wheel of bamboos slit so as to make a roaring sound: omission to do this would bring misfortune. Invocation of this saint will make his tomb or a tiger appear before one, if such an apparition has been prayed for.

(**47**) In 1876 A. D. an Arab, Sayid Makbuli, came to Taiping and settled there as a religious teacher. One day a Malay suffering from discoloration of the skin (*sopak*) held out his hands for alms. The Sayid prayed to Allah, spat on the skin and the disease vanished. The patient contrived to give a thanksgiving feast to the Sayid and a few friends. The Sayid asked him why he had not invited more people. He replied that he had not got enough rice. "Go" said the Sayid, "and call all the folk from the mosque." Then he prayed to Allah and the rice on the dish, so far from being insufficient, did not decrease although all helped themselves to it. He was recognized as a saint. When he died in 1886, his grave near the Taiping mosque became a sacred place.

(**48**) Seventy years ago a Perak Malay dwarf only three feet tall was leader of the mosque at Menglembu. He was called Imam Pandak. Every morning it was his custom to go in search of some particular food, mush-rooms or fish or fruit: nothing else would he take home, and whether he got his heart's desire or not he returned home about ten o'clock. Though poor he gave alms. If a borrower failed to repay, ill-luck overtook him. He was fond of buying and releasing wild animals and birds. When he reached the age of forty, folk invoked him as a saint. When at the age of 48 he died, a huge crowd attended the funeral and then incontinently disappeared. The villagers said they must have been angels or Muslim genies. The grave is only 3 feet long. In 1919 A. D. one Haji Abdul-Rahman tried to fell a durian tree beside this grave but though he hacked it for four days and cut it almost through, it would not fall until he invoked the assistance of this Saint.

(**49**) There was once a swashbuckler, Abu's-Samad, who fled from Patani on account of his misdeeds and went to Mecca where he lived for years. At last one of his pupils, Haji Ismail, brought him to Kampong Permatang on Sungai Dua in Province Wellesley. There he married and had children. He had a wonderful turtle-dove (*mĕrbok*) which often crowed by day: when it crowed at night, good luck came on the morrow. The bird died and a month later, its corpse was found beneath the house uncorrupted: it was bathed, shrouded and is still kept in a box. Also Abu's-Samad kept a hen that crowed like a cock. One day as she was cooking, his wife saw the water in a jar was finished: her husband fetched water from the well and in it floated a wonderful white mushroom! These portents and his piety have earned Haji Abu's-Samad the name of a saint. In 1917 A. D. Sultan Abdul-Jalil of Perak visited him. He is about 80 years' old now.

(**50**) About 200 years ago there lived in the Temerloh district of Pahang, a pious boy Shaikh Abdullah who devoted his life to religion and fed only once a day or once in four days. One Friday he vanised but at last was found in the mosque beside the *bilal*, clad in sweet-smelling raiment and shining with a radiant light. Another day, when his boat capsized in a storm, he walked ashore on the water. So he got the name of a living saint. During great floods, he would tie branches and fronds to tall tree trunks to help mice and insects to escape. In A. H. 1135 he sailed for Mecca and stayed there for five years. He died in A. H. 1160 aged 75 years. His grave is known as *makam*

To' Shaikh Sentang. Seven days after the burial, the head and foot stones separated and are now 15 feet apart. Vows are frequently paid there.

(**51**) There was born in the district of Temerloh Pahang, a man of mixed Indian descent, Haji Abubakar son of Haji Abdul-Karim, and grandson of Tambi Badoh (whose sacred grave is at Pulau Malang). He acquired much religious knowledge partly by study, mainly in dreams. All his words came true and despite his protests folk began to make supplications and fulfil vows to him as a living saint. He was master of a charm (*pĕtunang bĕlit*) that could send a bullet to its mark, though that mark were invisible and the gun pointed in another direction. He was as strong as seven elephants. His profession was that of a boat-builder. He died in 1891 A. D. at the age of 120 and his grave at Kampong Karai is sacred.

Malay Customs and Beliefs

as recorded in Malay literature and folklore

By H. OVERBECK.

Part I.

As most of the written as well as of t[illegible] literature of the Malays probably dates from the time when the Malayan kingdoms were in the zenith of their power [illegible] untouched by European influence, the old customs and beli[illegible] were still in vogue, the evidence gathered from such literature should have value. Though much of the material is taken from fairytales and works of fiction, the ceremonies, customs and beliefs mentioned therein are based on tradition, and are not merely the product of the imagination of the story-teller.

The origin of the Malays and the foreign influences to be found in their customs and traditions are still a matter of controversy, and the problem can be solved only by means of the comparative method. The field of research for such comparative work should stretch from Arabia right across Asia to China and down to the islands of the southern Pacific, and research is the more difficult as only a small fraction of the evidence of the people themselves is available in a European language. Of Malay literature and folklore but little has been translated into a European language, and an English version of the passages here collected should assist workers of the comparative system ignorant of the Malay language.

Unfortunately the classical period of Malay literature ended with the decline of the Malay kingdoms soon after the arrival of Europeans and the treasures of former times were scattered by European collectors before the first printing press had reached Malaya. Thus only a comparatively small part of the Malay literature is within the reach of the average European student of to-day. The works published in the "Malay Literature Series" have been my principal collecting ground, and the "Penglipur-Lara tales" as told by the professional story-teller, published by Messrs. Winstedt and Sturrock in that series, have proved veritable treasure-mines.

Works obviously of Indian, Arabian or Javanese origin have been left out altogether.

Birth.

The idea that a woman may conceive by partaking of some particular food is sometimes met with in Malay literature. In the "Shaër Sĕri Banian," the rhymed version of the "Hikayat Salindong Dalima," we read that Prince Bangsĕgara warns his sister, Princess Sĕri Banian, not to eat any pomegranates, as their country, being devastated by the Gĕruda, may be haunted by mischievous ghosts and devils. But Sĕri Banian partakes of a pomegranate, and a few days later feels that she is with child. She gives birth to a daughter and dies. In a later episode her daughter, Salindong Dalima, tells Prince Bangsĕgara in a song that her father is a certain Dewa Laksana, who was incarnated in the pomegranate which Sĕri Banian had eaten.

Whilst the presence of the Dewa in the pomegranate accounts for the birth of Salindong Dalima, no other explanation than the granting of a prayer is given for the birth of the hero of the "Hikayat Awang Sulong Merah Muda," whom his mother conceives by [illegible] a mangrove-leaf.

Prince Si-Hĕlang Laut has no offspring, and to obtain an heir to the throne [illegible] sails with his consort to the sea of Tanjong Jati to offer prayers [illegible] shrine there to have his wish granted by Allah. When the party returns from the shrine the prince's consort, Princess Si-Hĕlang Bakau, sees a yellow mangrove-leaf floating on the waves, which she catches and eats. "There were a thousand tastes in the leaf and the princess ate the right half herself and gave the left half to her sister, Princess Uli Ĕmak Si Anjing, the wife of Batin Alam. Within one month both princesses were with child." A few months after the birth of their son, Prince Si Hĕlang Laut and his consort sail again to the sea of Tanjong Jati to fish. As soon as they reach it the Princess falls sick........ and vomits leaves of trees and mangrove-leaves. She is taken home and dies three days later. Thus Princess Sĕri Banian as well as Princess Si Hĕlang Bakau die after having given birth to a child conceived by partaking of a particular food.

The idea of conception by partaking of some particular food is generally associated with the longings of a woman, in the third or seventh month of pregnancy. The food longed for is difficult to obtain or connected with royalty. The connection between this food and the child born afterwards is obvious in a case told in the "Hikayat Raja Muda."

When three months with child, Princess Lindongan Bulan longs to eat the only nut on an ivory coconut-palm (the kind sacred to royalty), the stem of which reaches heaven. Her husband borrows a chopper which was born together with Raja Muda, ascends the tree, which takes him seven days and seven nights, and after many adventures fetches the coconut, which he splits into three slices with the chopper. One slice falls into the sea and turns into a whale, the second slice falls down to earth and turns into the buffalo Si Bĕnuang, and the third slice the prince carries to his consort. She partakes of it and in due time gives birth to a son, Raja Sĕri Mandul.

There is some confusion as regards the birth of the whale and the buffalo. One slice of the coconut falls into the sea and turns into a whale, and the other falls to earth and turns into the buffalo but in the passage narrating the birth of Raja Sĕri Mandul we are told that the animals are born along with the prince. The midwives receive them, they are sprinkled with sacrificial rice-paste and parched rice coloured yellow with saffron is scattered over them. A buffalo of the same name is mentioned in the Menangkabau legend "Chindur Mata," where perhaps further information could be found. In the "Hikayat Raja Muda" the buffalo helps his human brother in a battle against a rival, whilst of the whale nothing further is said but that he has as attendant a white crocodile, which Si Bĕnuang fetches to help him to carry the body of Princess Renek Jintan to the palace.

In the "Hikayat Awang Sulong Merah Muda" Princess Si Hĕlang Bakau (who had become pregnant by partaking of a mangrove-leaf) longs after the third month of her pregnancy to eat of a white mousedeer, male, with young. Her consort goes a-hunting, and in a thunderstorm a white mousedeer, male, with young, leaps down and is caught by the prince. The princess eats the flesh, but preserves the bones.

When seven months have passed, she longs to eat of a tĕrubok-fish, male, with roe. A whole day is spent by her consort in fishing, but in vain, so he has recourse to magic and in a dream is told by a Muslim saint to fish on the following day with a silken casting-net with weights of gold in the sea of Tanjong Jati. The fish desired is caught, eaten by the princess, and the bones preserved.

These bones of the mousedeer and the tĕrubok-fish Awang Sulong Merah Muda, the hero of the story, takes with him when he leaves his country to follow Princess Dayang Sĕri Jawa. When after a storm they anchor at Pulau Tapai and the anchor slips owing to the heavy sea, Awang Sulong takes the bones of the white mouse-deer, binds them together with a many-coloured string and throws them into the sea. The anchor holds, the sea becomes smooth like water in a kettle, and the storm abates.

Another instance of longing for a particular food is told in the "Hikayat Si Miskin." Si Miskin is originally a king in Indra's heaven, but through the curse of Batara Indĕra has been banished to live on earth as the poorest of the poor. When his wife is with child in the third month, she longs to eat mango-fruits from the king's garden. As Si Miskin has already suffered from the cruelty of the inhabitants of the town, he cannot muster courage to face the king, but begs a few mango-fruits of a fruitseller. His wife however insists upon receiving mangos grown in the king's garden. Her husband, gathering courage, begs them of the king and succeeds. Three months later his wife longs to eat of a jack fruit growing in the king's garden, which Si Miskin again begs of the king. A boy, the hero of the story, is born.

The "Hikayat Hang Tuah," the tale of a Malacca hero has its story of longings told however only to show the hero's courage. When Raden Mas Ayu, the queen of Malacca, is in the seventh month of pregnancy, she longs to eat of the fruit of an ivory-coconut palm that stands in the centre of the town of Malacca. It had grown together with the Malaka-tree which gave the town its name. The stem is twenty fathoms high and half way up is damaged by fire.

The tree has only one bunch of seven fruits; the water of the fruits is very sweet and tastes like sherbet; the flesh of the fruit has the taste of the custard-apple. At the risk of his life Hung Tuah fetches the fruit, the queen eats, and in due time gives birth to a son, Raden Bahar who later becomes Batara of Mĕnjapahit.

In the Singapore version of the "Shaĕr Kin Tambuhan" Kin Tambuhan and her lover, the crown-prince of Kuripan, are restored to life by the gods and are married. When with child, she longs to eat of the "Pauh janggi that grows at the navel of the sea" and is guarded by a Dewa changed into a Gĕruda. Her husband goes in quest of the fruit, but is carried away by the Gĕruda and put into a prison, which he shares with other kings who have met with the same fate. Nevertheless Kin Tambuhan gives birth to a son, who succeeds in killing the Gĕruda and rescuing his father.—

In all these cases the food longed for is the fruit of a tree, except that Princess Si Hĕlang Bakau became pregnant by partaking of a leaf of a mangrove-tree.—

One may compare the tale of the magic transfer of an unborn child in the "Hikayat Raja Muda." The hero married a fairy-princess, and in her absence is carried off by a white elephant and made king of a country the ruler of which had died without male offspring. He is married to the daughter of the late king, and his first or fairy-wife appears at the wedding. She is six months with child and offers to transfer the unborn child to her newly-wedded rival. The latter agreeing, the fairy-princess takes betel, chews it and gives the quid to her rival. "And by the will of God praise to the Most High—who caused His power and might to take effect, the princess in the womb of Princess Bidadari Sĕgĕrba was incarnated and moved into the womb of Princess Kuntum Ratna Suri."—

In nearly all Malay fairy- tales the time of being with child is twelve months, "the time the hornbill takes to hatch its young, as long as it takes the papaya to bear fruit."—

In the seventh month of pregnancy Malay Muslim custom like Indian Muslim custom prescribes the ceremony of *mĕlĕnggang pĕrut.*

It is described in the Hikayat Awang Sulong Merah Muda. On a Sunday, the eve of Monday, Prince Hĕlang Laut begins the festivities which precede all important ceremonies, and sends his page with a betel-casket to call the seven royal midwives. They refuse to obey the summons, and the prince decrees the traditional punishment for the disloyal: "I shall bid my officers go and kill the seven midwives and their families; their possessions shall be scattered, their houses burnt, the soil whereon their houses stand shall not remain where it is, the pillars of their houses shall be turned upside down; thus they shall be struck by my royal power!" The midwives arrive in haste and obtain pardon. They ask that a feast in honour of the birth of Muhammad and of the souls of the dead be given and that there be prepared lustral water against evil influences and for ceremonial purification, jars adorned with a collar of plaited coconut-fronds to carry the water for the ceremonial bath, and garlands of diagonal trailers cut from the midrib of a coconut-leaf. A litter is built from areca-palms. The Prince and his consort are carried in procession to the river, where they don bathing-clothes, and after being shampooed by the eldest midwife and sprinkled with sacrificial rice-paste, are bathed with the two lustral waters. They change clothes and return to the palace, where the midwives rock or sway the abdomen of the princess seven times. A prayer and a banquet close the ceremony, for which all sorts of amusements were provided.

Betel is the customary retaining-fee given to Malay midwives. In the "Hikayat Malim Deman" the hero neglects his pregnant queen for concubines and the cockpit, and declines to return to the palace. The queen sends for the court officers and asks: "What is going to happen to me who have not even given the retaining betel to the midwives?" The court officers call seven royal midwives, and the queen passes over to them seven betel-boxes saying: "Midwives, this is your retaining-betel. I trust that you will take all care of me."

The "Hikayat Sĕri Rama" (ed. Maxwell) gives the following description of the preparation for a royal accouchement.

Raja Sĕri Rama orders the royal chamberlain to spread mats and carpets in the middle of the palace, and to hang a four-sided canopy for the lying-in of the queen. The seven royal midwives and the chief-midwife and the seven medicine-men and the chief medicine-man bring the queen. The court officers assemble and take their places according to rank to wait for the birth of the child.—

The presence of the king and the high officers of state at the birth of a royal child seems to be usual custom and no doubt is a political measure to prevent the substitution of another child. In the "Hikayat Malim Dewa," at the birth of the hero "the king is sitting by the head of his queen." When the hero of the "Hikayat Raja Muda" is to be born, the seven royal midwives are called and the high dignitaries are warned. The wives of the officers of state fill the palace, "some fetch hot water, some fetch water and firewood, some burn incense, some scatter parched rice coloured with saffron all over the place where the queen is lying." The king and the high dignitaries sit near the bed of the queen together with the medicine-men who mutter charms and spells. The hero of the "Hikayat Anggun Che Tunggal" is a posthumous child, and when he is born, the Dato' Orang Kaya Bĕsar (the prime-minister), who is the regent of the country sits near the bed of Princess Gondan Gĕnta-permai together with the medicine-men who mutter incantations to shield the princess against evil and to ensure a speedy delivery. In the "Hikayat Raja Muda" it is recorded at the birth of Raja Sĕri Mandul that Maharaja Bĕsar, accompanied by his father-in-law, sits by the head of his queen. When the prince is born, the seven midwives cut the navel-string and wash the baby in a golden vessel.—

The duties of parents when a child is born are laid down in the Muhammadan work called "Makota sĕgala raja" as follows: "As soon as child is born it is the duty of the parents to wash it in clean water, to dress it in proper clothes and to recite the *Bang* before the right, and the *Katam* before the left ear of the child."

These duties are fulfilled at the birth of Princess Rĕnek jintan, of which the "Hikayat Raja Muda" gives the following description.

When Princess Kuntum Ratna Suri is expected to give birth the king takes his seat by her head and sends for the court officers and medicine-men. The little princess is born under the sign of the planet Jupiter (*bintang mushtari*), at noon, and nine cannon-shots are heard from heaven (*kĕyangan*) from sea and from land. She is born with two swords in her left hand. When she is handed to the king, he stands up, turns in the direction of Mekkah and recites the verses Bang and Katam into the child's ear. The king then "opens the mouth of his newborn child" and gives her the name of Princess Rĕnek Jintan. He orders the prime-minister to erect a bathing-pavilion of twelve storeys, where he can take his new-born daughter for the ceremonial bath. Tents are erected on the plain adjoining the lake for the ceremony "of putting his daughter's foot to the earth."

Swaddling clothes are described as follows:—"The eldest of the royal midwives wraps the new-born Prince (Raja Muda) in seven layers of cloth, the first white, the second black, the third yellow, the fourth blue, the fifth red, the sixth purple, the seventh made of royal brocade (kain ainu'l-banat kain kĕrajaan)."—

Princess Renek Jintan is born with two swords in her hand. In the Hikayat Raja Muda the hero is born with a heavy chopping knife, which Raja Bujang Sĕlamat takes with him when he ascends the coconut-palm in quest of the coconut his pregnant consort longs for. In the "Hikayat Sĕri Rama" (ed. Maxwell) the magic matchlock to which Raja Duana has recourse when he has lost the battle against Raja Sĕri Rama, is "born with him." In the "Hikayat Hang Tuah" Sang Pĕri Dewa, the son of Sang Pĕrta'a Dewa, "is born with a crown on his head." In the "Hikayat Malim Dewa" Princess Gĕngorak in the land Mĕlioh addresses her magic parroquet as "child of the same womb," which possibly hints at some blood-relation between the princess and the bird.

An interesting description of the ceremonial bath after the birth is given in the "Hikayat Malim Demam." Dr. Winstedt tells me it is the Perak ritual interpolated by the Perak Raja who wrote the tale down.

Forty-four days after the birth of the hero, the queen having passed the prescribed days of seclusion the court marshals arrange a procession for his ceremonial bath. There are seven *kandas* and seven *mandas*. The first *kanda* carries the placenta, the second incense, the third a fowl, the fourth coconuts, the fifth bathing-clothes the sixth a tray with sacrificial rice-paste, the seventh a fishing-net. Arrived in the royal garden, the seven midwives bathe the prince and his mother, rub them with limes and powder them with cosmetics. "The seven midwives place the prince on two ivory-coconuts (the kind sacred to royalty) together with the fowl. Then they feast the spirits of the water, scatter parched rice coloured with saffron and sprinkle rice-paste over the prince and bathe him. The baby-prince cries, and the nurses and maids sing the song prescribed by custom. One of the court officers casts the net in the river, catches a fish with golden scales and diamond eyes, and puts it into the golden vessel from which the bathing-water is dipped. The prince and his mother are brought back to the palace, where the midwives and nurses put the little prince into a swinging-cradle, made of seven layers of cloth: the first layer black, the second yellow, the third a silk-cloth heavily embroidered with gold, the fourth a silk-cloth of tie-and-dye pattern from Sind, the fifth a cloth from Bali, the sixth a cloth from Chĕmpa, the seventh a piece of velvet-brocade. The baby-prince is then sung to sleep with a royal lullaby.—

The ceremonial bath and the treading on earth for the first time are described again in the "Hikayat Raja Muda."

The king, accompanied by his queen, his little daughter and his mother-in-law, proceed to a bathing-pavilion. The child is bathed by the seven midwives and the medicine-men "according to custom." The party returns to the royal tent, "and by the royal midwives the child is made to put its feet to earth, on the top of gold and silver." Then there are amusements, which last late into the night.—

Another custom is mentioned in the "Hikayat Awang Sulong Merah Muda," which seems to have some connection with the new-born child, as both the royal midwives and their colleagues the medicine-men take part in it.

Soon after the birth of Awang Sulong, his father, Prince Si Hĕlang Laut, calls the people from seven rivers and orders them to clear land for rice-planting.

After three months comes the dry season, and the kings sends for magicians to burn the felled jungle. Seven days and nights saw the burning completed!

The royal midwife is summoned to dibble holes and plant the rice-seed. When she comes, she sees:—

Hawks in heaven quick-retiring,
Up above the branches falling,
On the ground the apes a-chattering;
Shakes her head the royal midwife.

Again she is summoned to cut the ripe ears, when Si Hĕlang Laut celebrates the traditional feast in honour of the rice-spirit.

The custom of planting a coconut-palm when a child is born is mentioned in Abdullah bin Abdul-Kadir's account of his voyage to Kĕlantan. He meets an old woman and asks: "What is your age, mother?" She replies: "My coconut-palm has died; I planted another and that too is old and rarely bears fruit; its fruits are already quite small." Abdullah asks: "What does the coconut-palm signify, mother? I don't understand." The woman replies: "It is the custom with us, that if a child is born a coconut-palm is planted and when the child grows up and is asked 'What is your age,' he or she replies: 'That is the coconut-tree of my age.'"—

A description of the ceremonies following the birth of a royal child in historical times is given in chapter XXXIV of the "Malay Annals."

A son is born to Sultan Mahmud, to the joy of the aged father. The child is bathed, and the king orders the Kadzi to recite the verse Bang into the child's ear. The high officials bring presents for the little prince in accordance with their rank, and seven days after the birth the Tĕmĕnggong carries in procession the water for the ceremonial bath. The knife for the shaving of the prince's head is made of an alloy of copper and gold and has a handle of gold studded with gems. The head of the prince is shaved by the Bĕndahara, and during this performance the royal drums are beaten. The hair of the prince is weighed by the Bĕndahara's lady against gold and silver, which is given as alms to the poor. After the shaving the prince is given the name of Raja Ali, his nursery name to be Raja Kĕchil Bĕsar. Forty days later the Laksamana brings in procession the "yellow appurtenances" reserved exclusively for the use of princes. These consist of swaddling-clothes, sleeping-mattresses, husked rice, *bajang*-coats (*bajang* means "the dove-tailing of timber," and perhaps a dove-tail-formed piece of cloth is meant, worn by little children over breast and abdomen, fastened round the body with strings? *Bajang* could also be Javanese, meaning small in size:" cf. *jabang*, "a child in its early days": Klinkert mentions a *gĕlang bajang*, "an arm-ring of black-silk-string worn by little children as a protection against evil spirits). The Laksamana further brings sixteen pictures of birds on poles *pawai burong-burongan* "insignia of royalty or rank, in the form of birds carried before or behind persons of high station." The noblemen of the prince's crown (*mĕgat makota-nya*) are also sixteen in number, and the *tulang da‘ing* are sixteen (*tulang da‘ing* lit. "Bones of dried fish," perhaps pages waiting at the prince's table?) There are further sixteen fans and sixteen women in sleeve-less coats (*baju sĕroja* according to Klinkert being a sleeve-less jacket for women). There are sixteen Indian sarongs (*kain Kĕling*), forty pieces of muslin printed with golden lotuses which according to Klinkert also comes from the Coromandel-coast, and forty pieces of patterned silk (*chindai kara*). All these are hung over poles, whilst embroidered cushions and mattresses are carried on the back of elephants. For the bathing water there are sixteen processional litters. As soon as these presents reach the palace, the little prince and the queen are bathed, all the princesses and the wives of the high dignitaries carrying yellow cloth over their shoulders. After the bath the prince is installed at once as heir to the throne.

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Antiquities of Malaya.

By R. J. WILKINSON C.M.G.

Part I.

In the *Bijdragen tot de Taal—Land—en Volkenkunde van Nederlandsch—Indie, Deel 77, Aflevering 1, 3-4, 1921* Dr. G. P. Rouffaer has discussed in one paper if Malayur was not the name of Malacca before 1400 A. D., if old names for Johore were not Wurawari and Langka and old names for Singapore were not Tumasik and (Ma) hasin, and in another paper he has dealt at length with antiquities in southern Malaya. His first paper has been summarized in this Journal by Dr. R. O. Winstedt. From his second I abstract a list of places in Singapore and Johore where research may yet be rewarded by discoveries. Without the interest of the Government of the Straits Settlements and Johore and the efforts of local students all such antiquities are likely to be lost or overlooked.

1. ANTIQUITIES OF SINGAPORE.

A. The old moat as traceable on the slopes of Fort Canning.

B. Remains of a temple, tomb or palace building on Fort Canning.

C. The stones into which Ranjuna Tapa and his family were turned: *ada batu itu sampai sekarang ini di-parit Singapura itu* (The "Malay Annals").

2. ANTIQUITIES OF JOHORE.

A. **Tanjong Surat.** Is there an inscription at this Cape? And is "Pulau Chombun" (= **Pulau Chumbuan**) where Pahang envoys were greeted formerly on arrival at the Johore estuary?

B. **Johor Lama.** Malay tradition had it that "the Sultan who lived there had a fortified castle and that the city was adorned by several handsome buildings erected chiefly upon some elevated ground distant a few hundred steps from the last houses of the present village going down the river." Favre could find none. Logan said "The remains of an extensive rampart are still visible."

C. **Forts on the Johor River.**

Panchur (at mouth of narrow part) owes its name to the bathing place of the old rajas. Large stones perforated with holes are to be found on the banks of the river and are

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(*N.B* —The site except for a few Kampongs has been cleared and is a large Japanese rubber-estate belonging to the Mitsui family. I visited it but heard nothing of antiquities. The end furthest down-river seemed to me uncleared. R. J. W.)

said to be memorials left by the Achehnese of a conquering visit paid to Johor in the early part of the seventeenth century; they are supposed to be part of anchors and are called *batu anting-anting.*

(A Japanese Estate; R. J. W.)

Bukit Sungai Tukal. (= *Pertukal*). Once fortified; many traces left in Hervey's time: a flattened hill top; an iron gun; the tomb of Raja Tengku Puteh said to have been carved by a Chinese. The Portuguese built a fort here after 1587 A. D.

Bukit Seluyut. Said to have been fortified. The Temenggong had removed the guns (1826).

Merdalam. Possibly associated with a *dalam* or old *kraton* (Doubtful, R. J. W.).

Penateh. Possibly connected with *Pateh.*

Batu Sawar. Important as the real capital of Johor for a long time. Opposite it is *Kota Sabrang* where Raja Abdullah (Raja Sabrang), afterwards Sultan, resided. No travellers record any remains.

Makam Tauhid. Described in the "Malay Annals" as *di-hulu Sungai Damar di-dalam Sungai Batu Sawar.* Once a capital. No traveller has visited it, as it is off the main river.

Pasir Raja. Just below Kota Tinggi. Once a royal abode.

Kota Tinggi. Hervey records slight traces of a fort and two cemeteries, one close to the kampong, surrounded by a low wall of laterite and containing the tombs of the former sovereigns, and the other cemetery about a mile off in the jungle containing the tombs, some handsomely carved, of the Bendaharas; among these is the tomb of one Yamtuan. Behind the cemetery is Padang Saujana, a wide plain. None of the tombs have inscriptions or even dates.

Crawford says that at Padang Saujana there are 16 pairs of tombstones, one (longer than the rest) being the tomb of Sultan Mahmud *Marhum di-julang*). (Incidentally Mahmud's successor was the son of *Bendahara hilang di-Padang Saujana;* R. J. W.)

The country above Kota Tinggi is not interesting till we come to the Lenggiu or *Glang-kiu* country.

D. **The Lenggiu** or **Glang-kiu Country.** The "Malay Annals" recall the destruction of Glangkiu by a Chula king from Southern India. After 3½ hours slow travelling from the mouth of the Lenggiu, Hervey came to Pasir Berhala where Rouffaer thinks an idol may be found. Three hours further up (this includes cutting a way through tree-trunks) he came to Gajah Mina where a *Makara* may be found. Further on was Sempang Mahaligai where the old palace stood (tradition says it was a royal fishing-box). *Bukit Penyabong*, off the river and above Sempang Mahaligai, was the scene of the traditional "cockfight" between Raja Chulan and another raja whose name is not given:—Rouffaer would like to have it.

The real point is the discovery of the old fort of black stone, the true Lenggiu, which the Chola king took and which was known to exist by the author of the *Sĕjarah Mĕlayu* (*circa* 1612 A. D.) (who lived at Batu Sawar and was in a position to know). This discovery is all-important, if it can be made.

But Gangga-negara (Bruas) of which the site is well-known and much more accessible, was also taken by the Chola king and may also yield inscriptions.

(*To be continued*).

The State of Lukut.

By L. D. GAMMANS.

(With text figures)

Lukut, although attaining apparently at one period to the dignity of an independent state, has not a very long or exciting history to its credit. It was founded by Raja Busu, a Selangor Malay, who collecting together a band of followers from Selangor, Kedah and other parts, came and settled on the banks of the Lukut River. The actual settlement has long since disappeared, but a few attap shops and an exceptionally large mosque on the Port Dickson—Seremban Road at about 4½ miles from Port Dickson mark the site. The overgrown swamp on the right hand side of the road coming from Seremban, just after passing the Bukit Palong—Sepang Road, was apparently an estuary of the Lukut before mining silted it up. In the prosperous days which were to follow, as many as twenty tongkangs with dozens of prahus could be seen anchored in this haven at one time.

The attraction of Lukut to Raja Busu was undoubtedly the rich tin deposits up country which found their outlet at Lukut. Busu soon established himself and decreed that his lawful "squeeze" was to be 10% of all tin exported. In time he became more greedy until at last his rapacity cost him his life. One night the Chinese called at his house determined to put matters on a more satisfactory basis once and for all: they found the house surrounded with ore in various forms: the sight of this was too much for them: they invited Busu to come out on penalty of having his house burnt down about his ears: whether out of temerity or fear it is impossible to say, but he refused to do so telling them that no true Mohammedan ever feared death, and he bade them do their worse: they took him at his word and burnt the house down: not a single member of the family escaped.

His grave stands to-day on the hill overlooking the Custom Station at Kuala Lukut and is still an object of veneration in the neighbourhood.

Thus the infant state found itself without a leader: it was not long before Sultan Muhammad of Selangor (who reigned from 1826 to 1858) doubtlessly attracted by the tin, cast covetous eyes on it. He arrived in person and declared the state to be part of his territory. The men of Lukut do not appear to have raised any objections, which considering the fame of Muhammad is not to be wondered at. His strength was such that "he had killed a tiger with his hands and could push over a buffalo with great ease. No one had ever imagined that any man could be so tall." He appointed as his viceroy Raja Jumaat who was married to his daughter Tengku Nai and returned to Klang. Thus Lukut which up to this time had been wholly independent, commenced to pay allegiance to the throne of Selangor.

Raja Jumaat appears to have been an ideal leader, respected alike by Malays and Chinese: he set about energetically to put his state in order: he extended his dominion southwards until the whole of the Coast line of what is now Negri Sembilan from the Sepang to the Linggi was under his sway. Raja Sulaiman of Sungai Raya, Pasir Panjang, of whom we shall hear more anon, owed allegiance to him. He instituted a police force of 22 Malays, who not only wore uniform but had numbers on their hats, and built the Lukut Fort on Bukit Gajah Mati overlooking the settlement on the river. Within its walls he built a house for his daughter Raja Wok, who afterwards married her cousin Raja Muhammad. Cannons were purchased and the ditches deepended so that the little settlement had near by a strong rallying point within which it could take shelter in case of trouble. As soon as the fairness of Jumaat's rule being widely shown, settlers poured in from all parts anxious to put themselves under the protection of a man who combined strength of character with honesty of purpose. A resident population of Chinese—mostly Hylams—established itself in sufficient numbers to warrant a double row of more than 40 brick shop houses, the foundations of which are visible to this day.

In 1860 the State was visited by Captain Macpherson, Resident Councillor, Malacca, whose report is of great interest:—

> "The contrast between Lukut and Selangor is very striking: indeed the former can well bear comparison with any European Settlement: and it is equally striking and gratifying in the midst of a dense jungle to come suddenly upon the footprints of advanced civilisation. The roads are well formed and macadamized: the (as yet) only street of China town is uniformly built of brick and tiled roof, kept scrupulously clean and well-drained: the godowns on the river's bank are large and massively built, and both the people and the place have an air of contentment and prosperity.

> ....The Police Peons are dressed similarly to ours in Malacca, and the arrangements in the Police Station which I inspected are perfect. An object of much interest to me was the Gambling Farm: it is a large square building and there are Police Peons stationed at each of the four doors. No Malay is permitted to enter, and the punishment of a Malay man caught in the act of gambling is severe. Although crowded with players the most perfect order and quiet reigned throughout and those who lost their money displayed no symptoms of excitement or violence. Raja Jumaat's house is situated upon a hill which he is strongly fortifying: and a carriage-road, winding around, leads to the top.........................Prisoners in chains were employed upon the work.

On Raja Jumaat's death, he was buried in the small cemetery at Lukut where his grave to this day is still upkept by the Selangor Government, and was succeeded by his son Raja Bot, who appears to have been unable to carry on to the same extent the good work which his father had begun, but nevertheless was equally popular with all races and was considered a good ruler. He had a half brother Raja Jahya, older than himself, but ineligible to succeed his father owing to the fact that his mother was not of royal birth. Jahya deputised for his younger brother when the latter was absent from the Settlement. He was the father of Raja Abdul Kadir who for many years was Penghulu Port Dickson and died a few years ago.

The tie between Lukut and Selangor at this time does not appear to have been very strong. Jumaat reigned more or less as an independent sovereign: no part of the revenue found its way to the Selangor treasury. Raja Jumaat's power extended to the infliction of the death penalty when occasion demanded it: murderers were beheaded or stabbed to death.

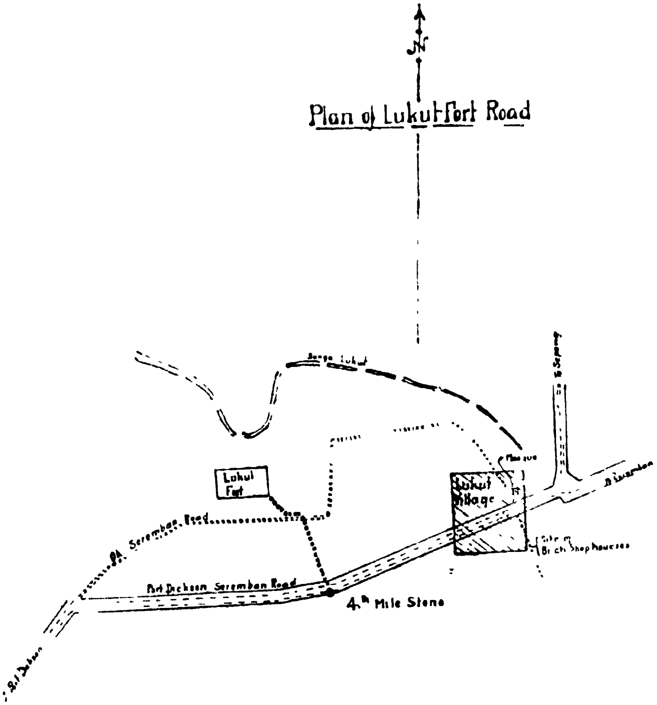
Like his father Bot contended himself with a modest revenue of 10% of all exports of tin. Raja Bot enlarged the fort and brought over a mercenary army of about 30 Arabs to fight for him. They lived round about, intermarried with the Malays and are undoubtedly responsible for the Arab strain which is clearly visible in many of the local Malays to this day. Very early in his reign he was called upon to cope with the only two disturbances in the history of Lukut. Raja Sulaiman of Sungai Raya thought the moment opportune to declare himself independent and without waiting for Raja Bot to enforce his authority, collected together a band and came and attacked Bot at Lukut. All the women and children were hastily put into the fort for safety and sufficient men left to guard them, whilst the remainder stood ready to do battle down below. The conflict took place in the heart of the settlement at Kampong China: the Arab mercenaries after seeing one of their number pierced in the chest with a dagger, at once fled leaving the Malays to bear the brunt of the battle. By sheer force of numbers Raja Bot prevailed: Raja Sulaiman leaving six of his men dead and with a large number of wounded on his hands retired beaten to his home at Sungai Raya.

The next occurrence is more remarkable in some ways: one Yahya, the adopted son of the Sultan at Langat, for some reason decided to pay a visit to Raja Bot and arrived with about sixty of his followers. He appears to have been a headstrong youth: taking a stroll at Kampong China, he seized a Hylam whom he declared was one of his coolies who had run away: he brought him in front of Raja Bot and struck his head off. Bot was furious that such treatment has been meted out to one of his subjects and when later a band of 100 Chinese arrived to demand an explanation, he declined to interfere on Yahya's behalf telling the Chinese that they could kill any Malay who not being dressed in red, was not one of his subjects. A melee took place on the spot in which the people from Langat got the worst of it and fled into the jungle leaving about ten of their followers dead on the ground. Yahya himself seized Raja Laut, one of Bot's relatives, round the waist to demand sanctuary and in the confusion escaped. Bot was furious at the high-handed conduct of Yahya and refused to allow his people to bury the dead saying "Let the bullocks eat them."

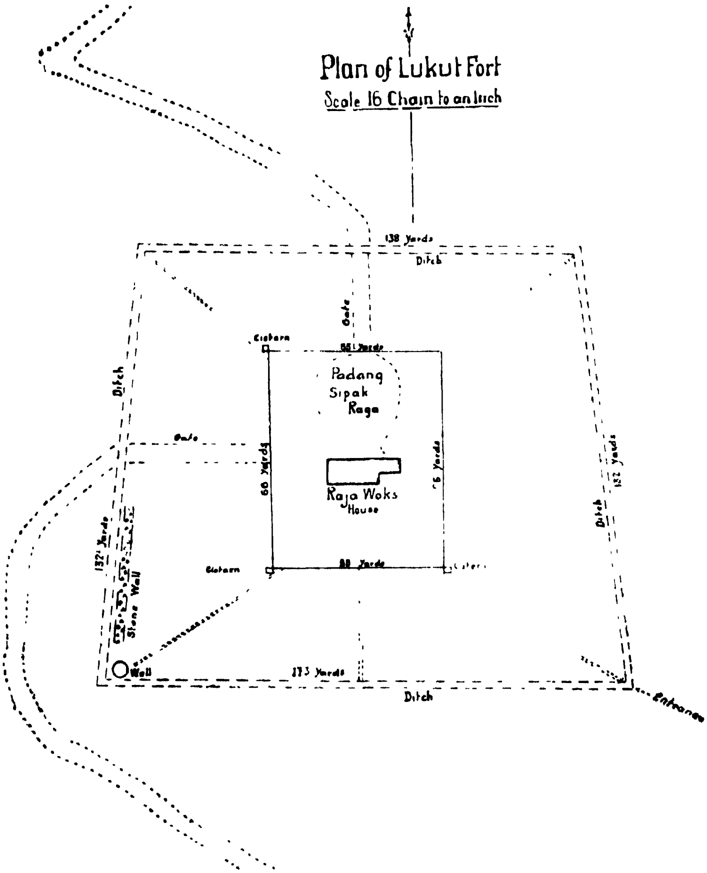
The days of the Settlement were now numbered. Larger events outside were destined to bring about its end. One day a British warship sailed up the river and anchored below the fort on her way to Sungai Ujong. Major-General Anson with the 2nd Battalion of the Buffs and a Battalion of Ghurkas came ashore. Raja Bot was asked whether he proposed to assist or otherwise: after deliberation he replied, "I will neither help nor hinder, but you may have free passage through my territory." Boxes of Spanish dollars were brought ashore and all willing to assist in carrying stores to Sungai Ujong were promised $2.00 a head for the job. A rather curious incident occured at the time of this visit. Raja Bot ordered a salute to be paid in General Anson's honour. For some inexplicable reason the gunners who were Bugis Malays became extremely excited and refused to stop firing when the correct number of salutes had been given. They loaded and fired the guns faster and faster until at last one gun was fired at the moment when one of the gunners was ramming down the charge with a ram rod: as a result his head was blown off.

The results of the Sungai Ujong War and the event which followed it are too well known to need repitition. In the somewhat protracted negotiations which followed, Raja Bot found that his territory was to be forfeited, and he retired to Singapore with a solatium of $20,000 in his pocket. The money soon disappeared and Bot retired to his relatives at Klang, where he died in 1911 at a ripe old age.

Journ., Malayan Branch, Royal Asiatic Society, Vol. II, 1924.



Journ., Malayan Branch, Royal Asiatic Society, Vol. II, 1924.



The Lukut Fort. The Fort stands on an eminence known as Bukit Gajah Mati several hundred feet high. Its tactical position is excellent: not only does it effectively command the river and the Settlements of Lukut down below, but from it a clear view to the sea can be obtained.

The Fort is rectangular and consists of an outer ditch about 10—12 feet deep in a good state of preservation. The earth from the ditch has been thrown up as a rampart: in one part at the South-West corner a stone wall has been erected to protect the well. In two places the wall has been pierced to form entrance gates on the North and West sides and an entrance road winds round the hill and joins the old Seremban road which ran at the bottom. The sides of the entrance road have been built up with uncemented bricks to prevent erosion.

In the centre of the fort stands the remains of the house, which Raja Jumaat built for his daughter Raja Wok. Judging by the foundations, the house must have been considerably larger than at present appears. Some very good Malay carving has been removed and placed in the Museum at Kuala Lumpur, for safe custody. The North-West corner of the fort adjoining the house is considerably higher than the remainder: this raised portion may have been constructed to give a clear field for fire over the heads of the defenders at the ramparts, or it may have been intended to place a similar raised platform all round the house for protection. On the north side of the house in front of the larger entrance gate traces remain of the small *padang* where *sepak ragak* was played.

The armament of the Fort consisted of a number of muzzle loading cannons mounted at various spots. These cannons now stand in front of the Police Station at Port Dickson and facing the sea in front of the District Officer's house. The ditch was protected by sharpened stakes. The defenders were armed as far as possible with old muzzle-loading guns.

One of the chief problem of the Fort was the water supply: a very deep well was sunk at the South-West corner and a wall erected to protect it. This well proved practically useless, only giving water in the wettest season. A number of large brick cisterns sunk in the ground were constructed and refilled at intervals by water brought up from below in buffalo carts. Three of the cisterns still remain.

The Fort is well worth a visit: it can be approached at about 4½ mile from Port Dickson along the Seremban Road. It is situated about ¼ mile from the road: a signboard marks the spot.

A Survey of the Dragonfly Fauna of the Malay Peninsula, with notes on that of Neighbouring Countries.

Part II.

By F. F. Laidlaw, M.A.

(*Continued from Vol 1. p 333*)

(Plates III, IV, V).

Odonata.

Sub-Order ZYGOPTERA (*continued*).

III. Sub-family **Epallaginae.**

Larva stoutly built, head and thorax flattened dorso-ventrally. Pedicle of antennae short. Mask short, with minute cleft at apex of middle lobe. Mandibles with outer margins deeply serrate. Femora flattened laterally, adapted for crawling on and under stones and boulders. Caudal gills sac-like. Paired ventral gill-like structures present on ventral side of segments 2-9 of abdomen. Gizzard with sixteen denticle-bearing areas, alternately large and small.

Adult with wings scarcely petiolated; numerous ante-nodal sub-costal cross-nerves. Quadrangle much shorter than medio-radial space; pterostigma well developed. Numerous supplementary sectors present. Body-colours not metallic, wings of males often richly coloured, partly metallic.

The *Epallaginae* are almost confined to the Oriental Region, but the type genus *Epallage* occurs in Asia Minor and the Balkan Peninsula.

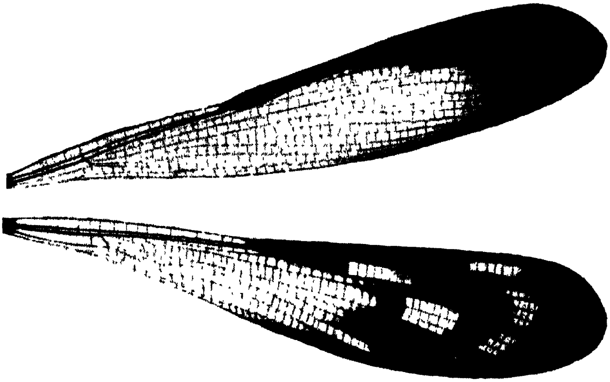
The sub-family is allied to the S. American *Polythorinae,* especially in larval characters, and shares with it certain features of the mandibles and mask, and with it alone amongst Odonate larvae (so far as is known) the ventral, abdominal gill-like appendages.

The adult venation of the two sub-families shews marked differences particularly in the shape of the quadrangle and arculus, but I think it probable that the *Epallaginae* and *Polythorinae* will ultimately be brigaded together in one family.

The type genus and the Himalayan genera *Anisoptera* and *Bayadera* have the wings colourless or with darkened apices without metallic patches. On the other hand the species of the two genera found in Malaysia are as a rule notable for the rich colouring of the wings of the male. Both have the quadrangle traversed by a cross-nerve.

De Selys characterizes them as follows:—

1. Nodus a little before the middle of the wing.
Dorsum of 10th segment of abdomen of male
with a projecting tooth, upper anal append-
ages slightly curved *Pseudophaea Kirby.*



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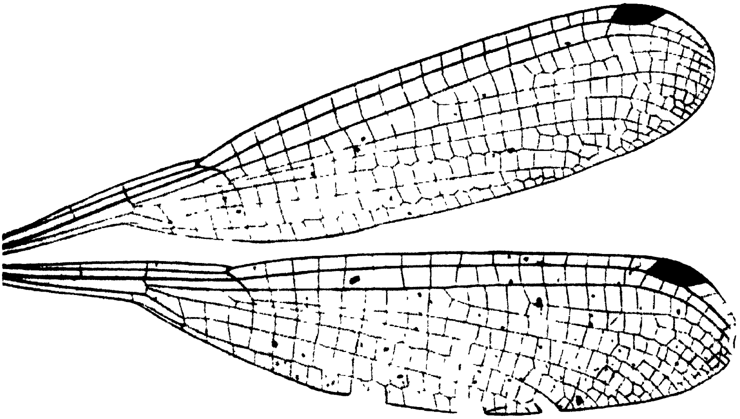

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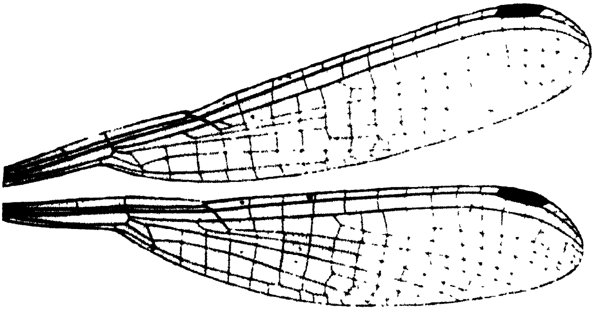
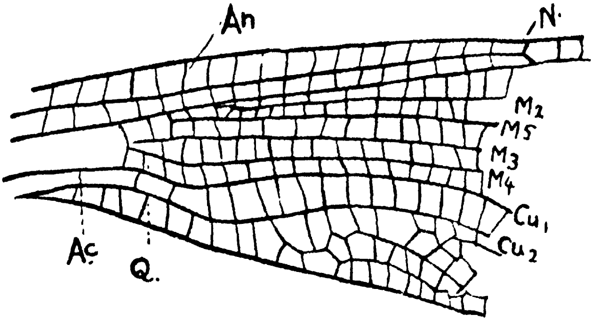
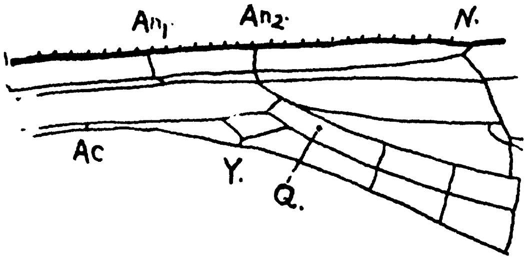


3

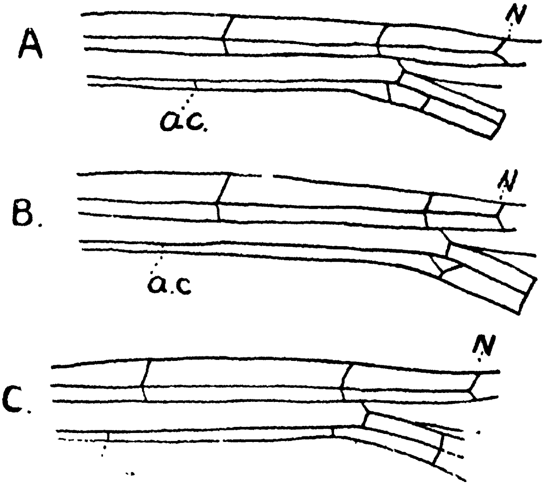
1. Rhinocypha angusta. *2. Podolestes chrysopus.* *3. Rhinagrion borneense*



4. Base of wing of *Pseudophaea* sp.

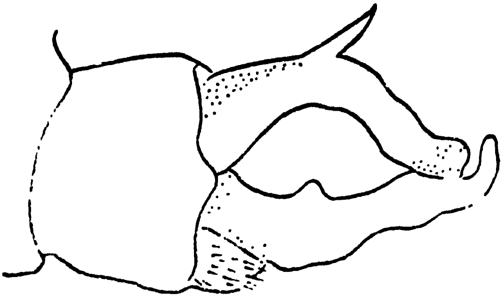


5. Base of wing of *Drepanosticta* sp.

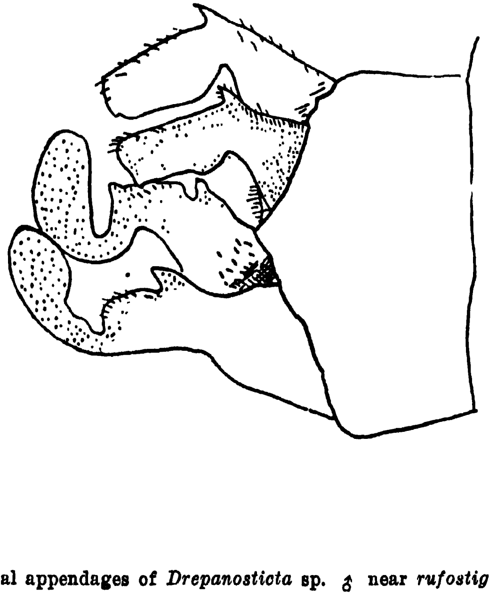


6. A, B. Wing base of *Drepanosticta* sp.
C. do. do. *Protosticta* sp.

Dragonflies.



7. Anal appendages of *Drepanosticta sharpei* ♂.



8. Anal appendages of *Drepanosticta* sp. ♂ near *rufostigma* Selys

DRAGONFLIES.

2. Nodus at middle of wing. Dorsum of 10th segment of abdomen of male without projection, upper anal appendages almost semicircular *Dysphaea* de Selys.

(In addition a remarkable insect from Manila may be noted here, it was described by Martin who gave it the name *Paraphaea barbata* (Martin Bull. Mus. d'hist. Nat. 1902 pp. 507-508).

It is of large size, hind-wing 41 mm. long, has hyaline wings tinged with yellow. The unique specimen is a male, and has a large bifid spine on the dorsum of the 10th segment of the abdomen, and in addition a large tuft of hairs on either side of the 9th segment below.

It is apparently a specialized off-shoot from *Pseudophaea*).

Genus **Pseudophaea** Kirby.

(**Euphaea** de Selys nom. pracocc.).

Widely distributed over the Region, not recorded from Celebes and apparently absent from the Plains of India and W. Himalayas. The species are numerous and fall into several groups.

I. Group *ochracea* de Selys.

Includes the least differentiated and possibly the most primitive species of the genus. In the males the hind-wings resemble in outline those of the females, and show little or no specialization of wing-colour.

The typical species *ochracea* is from Malacca and ranges through the Peninsula as far north as Patani. It is the smallest species of the group (hind-wing 27.5 mm.).

The male has the hind-wing uniformly golden yellow, the fore-wings from the base to the nodus are of the same colour, but beyond the nodus almost colourless. I have not seen a female of this species.

P. brunnea Selys, occurs in Burma and (?) Tonkin. It is slightly larger and more robust than the last species (h. w. about 30 mm.). The male has the hind-wing tinged from the base to a level half-way between the nodus and pterostigma, the anal margin at the widest part of the wing is a little smoky; the distal part of the wing is almost colourless. In the fore-wing the yellow colour extends from the base to just beyond the nodus, the rest of the wing is uncoloured: Females have the bases of all the wings tinged with yellow.

The male *brunnea* has the *colour-pattern* identical with that of the female of *P. formosa* Selys. We are perhaps justified in regarding the *ochracea* group as not greatly modified descendants of the ancestral group from which the existing *formosa* and its immediate allies from Hainan, S. China, and Formosa, are also derived.

The British Museum has a series of specimens, all males, from Tonkin labelled *P. ochracea* by MacLachlan. These in my opinion differ from the true *ochracea* and are at least sub-specially distinct. They are decidedly larger and have more evenly coloured wings. The late Mr. H. Campion thought them to be *brunnea* but I cannot accept this identification, and I believe them to belong to an undescribed species.

A still larger species *P. lara* Kruger, is found in Lombok and Sumbawa. The wings of the male are uniformly tinged with yellow.

II. Group *variegata.*

The typical Malaysian group, confined to the Peninsula, Borneo, Sumatra and Java; with allied groups in Ceylon, the Philippines and Tonkin.

Males with wings similar in outline to those of females, and with a sharply defined opaque area on the hind-wing, on which is superimposed a bright blue or green metallic patch. Fore-wing with or without a definite opaque area.

Borneo with four species has the richest representation of the group. The males are amongst the most brilliant of oriental insects, and they are exceeded by none in elegance of form.

I have no female specimens belonging to species of this group, the key below is for males only.

I. Fore-wing with definite opaque area. Hind-wing with opacity beginning at about the level of the distal end of quadrangle. Metallic patch extending to a point about midway between nodus and pterostigma.

a. Hind-wing slightly widened (9 mm. at its widest) metallic patch reaching hind-margin of wing *P. variegata*

b. Hind-wing not widened (6.5 mm. to 7 mm. at its widest) metallic patch not quite reaching hind-margin of wing *P. aspasia*

II. Fore-wing without definite opaque area, or at most with black marginal line between costa and subcosta from base to nodus.

c. Opaque area beginning at base of hind-wing. Length of hind-wing 27-28 mm. *P. basalis*

d. Opaque area beginning at about level of nodus, its inner margin approximately transverse to long axis of wing. Length of hind-wing 26-27.5 mm. *P. tricolor*

e. Opaque area beginning five or six cells basalwards from nodus, its inner margin sloping outwards from before backwards. Area between radius and M1+2 always hyaline up to nodus. Length of hind-wing 28-30 mm. *P. subnodalis*

f. Opaque area beginning about half-way between wing-base and nodus, its inner margin irregular, with hyaline indentation between M4 and Cu1. Area between R and M1+2 never hyaline to level of nodus. Length of hind-wing 25-26 mm. *P. subcostalis*

III. Group *masoni* Selys.

A group of species closely allied to the last, but with a more northerly distribution. The males have the hind-wings more or less definitely widened, and opaque black save at the extreme base and apex. The opaque area is either wholly or in part metallic, but lacks the brilliance of *variegata* and its immediate allies. Front wing with an opaque mark occupying about the middle third of the wing.

One member only of this group is recorded from our area. Examples of a race of *masoni* were collected at Mabek in Jalor by Dr. Annandale. In these specimens the hind-wing of the male shows little or no widening. Examples from Burma in Mr. Williamson's collection are rather larger and show a distinct widening of the male hind-wing, whilst yet other specimens from Tonkin otherwise exceedingly similar are still larger and show very marked widening. All of them have a slight violet reflex over the whole opaque area of the hind-wing.

IV. Group *dispar* Selys.

The males of this group have the hind-wings distinctly shorter than the fore-wings, and with very regularly rounded apices, so that the wing appears to increase gradually in width up to the level of the pterostigma. The fore-wing is colourless, the apical fourth or third of the hind-wing is abruptly opaque blackish brown with a slight violet metallic reflex.

The distribution of the group is curious. Two species are found living in close proximity in the Nilgiri Hills in S. India, viz. *P. dispar* Selys, and *P. fraseri* Laidlaw, whilst the third has representative races in the Malay Peninsula and in Borneo. This species is also found in Sumatra, but whether it is there represented by a race distinct of each of the other two or not I do not know.

The Malayan species has the hind-wing about 25 mm. in length, the opaque area occupying about the terminal two fifths of the total wing-length. The Raffles Museum has a single male labelled Siantan Is. Natuna.[1]

The Bornean race *inaequipar* is a little smaller in size (h. w. rather less than 25 mm. in length), and the opaque area occupies the terminal third of the hind-wing.

Possibly allied to this group are *P. modigliani* Selys, from the Mentawi Islands, with the apical third of all four wings opaque in the male; and *P. bocki* Selys, from the interior of Sumatra. This latter has the apices of all four wings abruptly opaque from the level of the pterostigma, and a longitudinal submarginal ray of metallic blue on the hind-wings running from the nodus to the terminal opacity.

Genus **Dysphaea** de Selys.

Distribution more restricted than is that of *Pseudophaea*. Recorded hitherto from the Malay Peninsula, Sumatra, Borneo,

---

[1] **We know of no such place. The specimen is almost certainly from Siantan Id, Anamba Group.**

Java and Tonkin, a species of the genus has recently been discovered in S. India by Major Fraser, and the British Museum has an example of *D. basitincta* Martin, from Hainan.

The Malaysian species are very distinct from the Psendophaeas in appearance, their long narrow wings with abruptly define pattern of rich brownish black make them easy to recognize.

Considerable individual variation occurs in the colour pattern of the males. In the case of females, which are but rarely collected, the pattern is faintly defined by a slight deepening of the brownish-yellow tinge which pervades the whole wing.

It is a matter of some little difficulty to determine the limits of the species. I believe two Malaysian forms can be distinguished. Of these *D. lugens* is slightly the larger (hind-wing 32-34 mm. abd. 41 mm.). The male has the base of the wing coloured to a point several cells beyond the level of the nodus in the fore-wing, and up to within a few cells (3 or 4 to 12) of the level of the pterostigma, or even right up to the pterostigma itself in the hind-wing. The apical colouring begins at the distal end of the pterostigma, or beyond it.

The second species *dimidiata* has the hind-wing about 30 mm. and the abdomen 36 mm. The hyaline areas of the wings are without the yellowish tinge noticeable in *lugens* whilst the basal markings are less extensive; those of the fore-wings stopping short of the nodus, usually several cell-lengths on its proximal side, those of the hind-wings reaching to the nodus or a few cells beyond. As with *lugens* the apices of the wings are tipped with black. In many individuals a black costal stripe extends from the termination of the basal marking to the pterostigma, sometimes on all the wings, sometimes on the hinder pair only. De Selys proposed the names *limbata* and *semilimbata* for these, but subsequently regarded them as merely individual varieties. I have seen examples of both forms together with typical *dimidiata* in a small series from Pahang.

IV. Sub-family **Amphipteryginae.**

Larva of Malayan form unknown (*Piphlebia,* an Australian genus, has a larva which lives in crevices of rocks on stream-beds. It has a flattened body with a large, wide head. Antennae long, second joint very long, labium relatively very large, median lobe with shallow indentation, lateral lobes terminating in a slender, moveable hook, and with three smaller spines. Legs long, femora flattened. Abdomen short, caudal gills triquetral).

Adult with wings petiolated to level of *Ac.* Quadrangle small, nearly rectangular. Antenodal costal cross-nerves few 7-8, only those proximal to arculus continuous across the sub-costal space. Pterostigma long, very oblique. Supplementary sectors present. Body colours not metallic. Wings (of Malayan species) uncoloured or uniformly tinged smoky-brown. Legs moderately long, with long cilia.

This sub-family contains but three genera, one S. American the type-genus of the sub-family (*Amphipteryx*), one Australian

Diaphlebia, and one Malaysian. These genera are primitive, possibly not very closely related to each other, intermediate to some extent between the sub-families already defined and those with more reduced venation to be discussed later.

The single Malaysian species is *Devadatta argyrioides* Selys. It is widely distributed and is most generally taken at an elevation of 1000-2000 ft.

[These first four sub-families of the Zygoptera, along with the American *Polythorinae* were originally grouped by de Selys in the sub-family *Calopteryginae.* They are distinguished from all other Zygoptera by the possession of more than two antenodal costal cross-nerves, and by their relatively complex venation. Though the Selysian sub-family is now by common consent broken up, it is still convenient to remember that any Malaysian Zygopteron with more than two antenodal nerves finds its place in one or other of the four sub-families dealt with above. In a very few extra-regional genera or species not belonging to the '*Calopteryginae*' three or even four antenodals occur, but these are very rare exceptions].

V. Sub-family **Megapodagrioninae.**

Larvae of Malayan genera unknown. That of *Argiolestes,* an Australian genus, is up to the present the only one described. This is chiefly remarkable for its horizontally flattened, lamellar gills. The mask is said by Tillyard to resemble that of the *Epallaginae.*

The adult has the wings petiolated to the level of *Ac.* at least. Quadrangle with its costal margin about two-thirds the length of the anal margin. Pterostigma elongate, oblique; only two antenodal cross nerves (In one or two non-regional genera three or even four may occur). Supplementary sectors present. *MS* rising at level of nodus, M3 a little proximal to it. Body colours not metallic; wings in Malaysian forms uncoloured. Legs provided with long cilia.

This sub-family includes genera which are regarded as primitive, and the presence of supplementary sectors, and of a long pterostigma, may be taken as a proof of a less specialized wing-structure than that found in the remaining sub-families of the sub-order (with the exception of the *Lestinae*). The geological history of the sub-family dates from the miocene at least. At the present time its genera are entirely tropical or sub-tropical in distribution, and are most richly developed in S. America. No representative of the sub-family is known to occur in S. India or Ceylon, and the Oriental Region as a whole is not the home of many *Megapodagrioninae.* The fauna of the Malaysian area includes but two genera: one of these, *Rhinagrion,* has five or six species, the other *Podolestes,* two only.

The other Oriental genera are Himalayan or Indo-Chinese, and are mostly monotypic. One species from the Himalaya *Argiolestes melanothorax* Selys, is remarkable as belonging to a genus otherwise known from Australia and Papua only; another *Pseudolestes mirabilis* Kirby, from Hainan is remarkable as it appears to mimic

Pseudophaea decorata Selys, occurring in the same island, the only instance I can call to mind of one dragonfly showing what certainly looks very like mimetic resemblance to another, belonging to a very different group.

The Malaysian genera may be characterized as follows:—

A. Breadth of fore-wing bears a ratio to its length of about 1 : 5¼. Pterostigma relatively short and broad, covering rather less than two cells. Supplementary sectors present between *M1, M2, MS, M3, M4*. *M4* decidedly angulate in its distal half. Clypeus not specially developed. Lower anal appendages of male as long as upper pair. *Podolestes* Selys.

B. Breadth of fore-wing bears a ratio to its length of about 1 : 5¾. Pterostigma relatively long and narrow, covering two cells. Supplementary sectors absent between *M3* and *M4*, and otherwise very feebly developed, save between *Ms* and *M3*. *M4* straight for its whole length. Clypeus very prominent. Body and head robust, the insect having the proportions of a *Rhinocypha*. Lower anal appendages of males very short, upper pair very slender. *Rhinagrion* Calvert (= *Amphilestes* Selys).

Genus **Podolestes** de Selys.

The genus *Podolestes* is confined to the Peninsula, Sumatra and Borneo. There are two species. Of these *orientalis* Selys, has 19 or more post-nodal cross-nerves (Krüger gives as many as 23), whilst *chrysopus* Selys, has fewer, 15-18. *Orientalis* has the thorax olive coloured with black lateral bands, *chrysopus* on the other hand has the thorax entirely bronze-black.

Genus **Rhinagrion** Calvert.

The genus *Rhinagrion* is highly specialized and occupies an isolated position in the sub-family. The colouring of the species is peculiar and striking; bright green, orange-brown, yellow and black combining to give a startling effect.

- Markings on dorsum of thorax a pair of parallel bands one on either side of the middle line.
  - Terminal segments of abdomen of male not flattened, reddish-brown; of female black. Abd. 29 mm., h. w. 24 mm. *R. mima* Karoch.
- Markings on dorsum of thorax a pair of oval or triangular spots.
  - Segments 8-9 of abdomen of male rather flattened dorso-ventrally, whitish-blue in colour. Abd. 27-31 mm., h. w. 19-22 mm.
    - Thoracic markings triangular. *R. borneense* Selys.
    - Thoracic markings oval, rather oblique. *R. macrocephala* Selys.

Thoracic markings oblique, commencing below in a short narrow stalk, almost hooked. *R. elopurae* Maclachlan.

Segments 8.9 of male abdomen reddish-brown. Thoracic markings similar to those of *macrocephala;* abd. 31 mm., h. w. 25 mm. *R. tricolor* Krüger.

Imperfectly known species, size larger than preceding; abd. 44 mm., h. w. 26 mm. Thoracic markings apparently similar to those of *macrocephala.* Colour generally dark. *R. philippina* Selys.

VI. Sub-family **Platystictinae.**

Larva (of *Protosticta graveleyi* Laidlaw, S. India, the only described larva of the sub-family) slender, with long legs. Three triquetral, caudal gills. Mask short, oval; the middle lobe with a short median cleft; lateral lobes stout and short, each ending in a blunt tooth-like point, and carrying a stout moveable hook.

Adult with wings slightly falcate, petiolated to the level of the arculus, or nearly. Quadrangle rectangular, long uncrossed. Two antenodal cross-nerves. No supplementary sectors. *Ac* lies proximal to *An1,* in the cubito-anal space, a second nerve crosses the same space a little proximal to the arculus. *Cu2 apparently absent,* but in some genera a cross-nerve descending from the lower margin of the quadrangle to the hind-margin of the wing possibly represents *Cu2.* Pterostigma rhomboidal, covering one or two cells, its costal margin usually shorter than the anal. Body especially of males, often extremely long and slender; body colouring in many species with a metallic glaze. Legs short, with long cilia. Anal appendages of males in many cases of extremely bizarre form. Wings save in rare cases uncoloured.

The genera with the least reduced venation are found in Tropical S. America, and in Ceylon and S. India.

The remaining genera are distributed over the wetter parts of the Oriental Region, two or three species are recorded from New Guinea. None are recorded from Africa or Madagascar. The members of the sub-family were formerly grouped under the Selysian *Legion Protoneura.* They share with the other genera of that *Legion* the loss or great reduction of Cu2. In other respects they seem to me so different that I regard this loss as the result of convergence and not as indicating near relationship. In fact the *Platystictinae* stand rather remote from other sub-families, and it is impossible as yet to say in what direction their affinities be.

The species are generally to be found about small, shady forest-streams, where their tenuity and colouring afford them sufficient concealment. The number of species is probably large, but in collections they are as a rule rare; in fact so few examples are generally available even in the largest collections that it is likely that in some cases specimens are incorrectly identified, especially as specific difference are often chiefly discoverable in the structure of the anal appendages of the male, The presence or absence of the cross-vein running anal-wards from the anal margin of the quadrangle is a matter of generic importance; and when present its relation to the transverse vein of the cubital space which lies at the level of the arculus, is probably a character on which groups of species may be classified, though I am not able to use this character without restrictions at present as in some species at any rate a curious individual variability occurs, and in one specimen of an undetermined species from 'Singapore' in the British Museum, the fore-wings show a clear difference in this respect from the hind-wings.

Oriental genera of *Platystictinae.*

1. A cross nerve descends from the anal border of the quadrangle towards the anal margin of the wing.
   a. M1 + 3 and M4 leave the arculus separately. MS strongly angled. Cells of wing distal to nodus mostly pentagonal. *Platysticta.*
   b. M1 + 3 and M4 leave the arculus by a short common stalk. MS straight, and wing cells distal to nodus mostly quadrangular. *Drepanosticta.*
2. No cross-nerve descending from anal border of quadrangle. *Protosticta.*

The *Platystictas* are recorded only from Ceylon and S. India and do not concern us here.

Genus **Drepanosticta** Laidlaw.

The genotype is *D. carmichaeli* Laidlaw, from Darjiling. It has the nerve crossing the cubito-anal space, proximal to the arculus, and the nerve descending from the quadrangle totally separate from each other. The hind-wing reaches to the level of the junction of the proximal and middle thirds of the sixth segment of the abdomen. M3 commences at the level of the subnodal vein MS distal to it.

[A small group of some four species occurs in Ceylon. These are all similar in proportions to the geno-type, but in all of them the cubito-anal and sub-quadrangle cross-nerves unite towards the anal margin of the wing to form a Y-shaped vein, as in Platysticta. In them too M3 rises at or a little proximal to the sub-nodal cross-vein, MS a little distal to it or occasionally from it].

The remaining species of the genus are imperfectly known for the most part.

Quadrata is from the Malay Peninsula and (?) Burma.

The sub-cubital and sub-quadrangular cross-veins do not form a Y-shaped vein. M3 rises a little distal to the sub-nodal cross-vein. Pterostigma short and nearly square. Abdomen ♂ 35 mm., hind-wing 21 mm. Unique ♂ Malacca: a female from Burma named *quadrata* by de Selys is perhaps not conspecific. *Sharpi,* recorded from Bukit Besar in Jalor (type and allotype ♂ ♀) Penang, and Jor in Perak is possibly a synonym of *quadrata* but its measurements suggest that it is distinct. M3 distal to sub-nodal cross-vein. Pterostigma short almost squar

♂ upper lip white edged with black, ante-clypeus white; post-clypeus and rest of upper surface of head black. Prothorax whitish yellow its posterior margin black. Dorsum of synthorax black-bronze as far as the second lateral suture, but with a blue line along the first lateral suture, whitish-yellow below. Legs whitish-yellow, a fine black line on posterior surface of femora, articulations and cilia black. Abdomen bronze-black above, each segment paler apically (? blue) darker in the middle and at its distal end. Segments 8.9.10 black, distal two-thirds of dorsum of 8, and the whole of the dorsum of 9 blue. Anal appendages black.

Hind-wing reaches the middle of segment 5. Abdomen 45 mm., hind-wing 25 mm.

This description, except as regards relative length of abdomen and wings would stand for *quadrata* equally with *sharpi.* I have not been able to examine the annual appendages of an authentic quadrata. I figure those of an example of *sharpi* from Jor.

The specimens which I referred to *quadrata* in "Fasciculi Malayenses" (Zool. Pt. IV p. 11. fig. 1) do not belong to that species but are representatives of an unnamed form, whose colouring is probably not very unlike that of *quadrata.* The males have anal appendages similar in outline to those of *carmichaeli,* but their upper pair carry a curious brush-like tuft of hairs. Unfortunately the specimens, from Bukit Besar in Jalor, were in bad preservation and are unfit for description. It is to be hoped that fresh examples will be obtained.

A large male collected by Waterstradt in Kelantan also referred (loc. cit.) to *quadrata* probably belongs to yet another species. Its dimensions suggest this at any rate. Abdomen 40 mm., hind-wing 29 mm.

I have lately received 3 males and a female of yet another species from the Peninsula; collected by Mr. Chasen at Jor. In them M3 rises from the sub-nodal cross-vein. MS distal to it. A Y-shaped vein is regularly present, the pterostigma is a little longer than it is broad. Length of abdomen ♂ 30 mm., hind-wing 18.5 mm. ♀ abdomen 27 mm., hind-wing 18.5 mm. In the male the hind-wing reaches beyond the commencement of the sixth segment of the abdomen.

♂ upper lip bluish white edged with black anteriorly. Ante-clypeus white; post-clypeus and rest of upper surface of head black. Prothorax yellow, with black marks on either side and on the posterior margin. Dorsum of synthorax violet-black as far as the second lateral suture, with the mid-dorsal carina finely marked with yellow, and with a yellow lateral stripe. Legs brownish yellow with a black line on the posterior surface of femora, and articulations and cilia blackish-brown.

Abdomen brownish-black above, paler at the sides and below; segments 4-7 also with a pale (? blue) ring anteriorly. Segments 8.9.10. entirely black. Anal appendages brownish-black of very bizarre form (fig. 8).

This species I regard as closely related to or identical with the Bornean *rufostigma,* and with it belongs to a fairly distinct group of the genus characterized by the relatively short abdomen, the possession of a Y-shaped vein, the simple, hind margin of the prothorax, and the shape of the male anal appendages. Another group with representatives recorded from Sumatra, Java, the Philippines and New Guinea is remarkable for the possession of curious paired processes developed from the hind-margin of the prothorax. The only example of this group I have been able to examine, a male of a small (? unnamed) species from the Philippines has the Y-shaped vein present; a relatively short abdomen and anal appendages not very unlike those of *carmichaeli.* The prothoracic processes are shaped rather like the 'halter' of Diptera. In *sundana* Krüger, a species recorded from Sumatra and Java, these processes are present in both sexes, and the lower anal appendages of the male are without the curious hook-like termination found in *rufostigma.*

Lastly *lestoides* Brauer, from the Philippines resembles in proportions *quadrata,* but possesses a Y-shaped vein and a relatively long pterostigma; whilst *annulata* Selys from Luzon is known from immature female examples only and belongs possibly to the *rufostigma* group.

Genus **Protosticta** de Selys.

The great relative length of the abdomen found in certain species of *Drepanosticta* is even more marked in many species of the present genus, in some of them the length is actually double that of the hind-wing. The *Protostictas* are widely spread in the more densely forested parts of the Oriental Region; the species are probably numerous and have a restricted range.

From S. India there is known a group of at least five small long-bodied species, all of them have the upper anal appendages of the male more or less chelate. From Darjiling one species of greater size is known. This species *himalaiaca* Laidlaw, has the upper anal appendages of the male relatively uncomplicated in shape. One species so far has been recorded from the Peninsula. This is *P. försteri* Laidlaw, known from a single female (the type) collected by myself at Kuala Aring in Kelantan, and a male presumbly conspecific taken by Waterstradt at Jor, Perak. The hind-wing is about 17.5 mm. long, the abdomen of the male 38 mm. The ninth segment of the abdomen has the dorsum entirely ivory-white in the male, in the female the distal half only is of that colour. The upper anal appendages of the male are bent almost at a right angle at their middle; the lower pair are slender, project beyond the upper pair and carry a small bundle of bristle-like hairs at the apex.

From Borneo two species have been described. One of these *kinabaluensis* has a relatively short abdomen (hind-wing 22 mm. abd. 34 mm.). Only a single male specimen is known. Its anal appendages bear some resemblance to those of the *rufostigma* group of *Drepanosticta.*

The other, *versicolor* from Lawas described from an unique female example, differs from all other species of the genus so far as I know in possessing a strong median spine rising from the posterior margin of the prothorax, this process is nearly 1 mm. in length. The species is further characterized by the black ventral surface of the prothorax, the dorsum being brown. Lastly two species have been described from the Celebes.

CORRIGENDA AND ADDENDA.

Part I. Vol. I. Oct. 1923.

p. 329 bottom line for *stigmatezonis* read *stigmatizans*.
p. 330 line 19 for *stigmatezonis* read *stigmatizans*.
p. 330 line 42 after *Matronoides* delete (sens. lat.)
p. 331 line 9 *for* 2. Pterostigma in male long and narrow, in female short and square—sub-gen. *Echo*
read 2. Pterostigma in male long and narrow, in female short and square—sub-gen. *Climacobasis*.

To be more in uniformity with other writers I propose to use the term *Malayan* to denote a species pertaining to the Malay Peninsula and *Malaysian* pertaining to the area especially inhabited by the Malaysian fauna *i.e.* Borneo, Sumatra, Java and the Peninsula. So far as Odonates are concerned the area should also include the Philippine Islands and ? Celebes.

Legend of Figures. (Plates III, IV, V.).

1. Wings of *Rhinocypha angusta* Hagen, Selys. ♂ (Libellaginae). Benkoelen Distr., Sumatra. Photo, F. W. Campion.
2. Wings of *Podolestes chrysopus* Selys. ♂ (Megapodagrioninae). Borneo. Photo, F. W. Campion.
3. Wings of *Rhinagrion borneense* Selys. ♂ (Megapodagrioninae). Borneo. Photo, F. W. Campion.
4. Base of wing of *Pseudophaea* sp. (Epallaginae). Camera lucida drawing of larval wing. Lettering as in fig. 2 of Plate facing p. 332 Vol. I of this journal.
5. Base of wing of *Drepanosticta* sp. (Platystictinae). Ceylon. Camera lucida drawing. Y = y-shaped vein, other lettering as in fig. 2.
6. A. B. Wing base of *Drepanosticta* spp. C. Wing base of *Protosticta* sp. (diagrammatic).
7. Anal appendages of *Drepanosticta sharpi* ♂. From a specimen taken by Mr. F. N. Chasen at Jor. Camera lucida drawing.
8. Anal appendages of *Drepanosticta* sp. ♂ near *rufostigma* Selys. From a specimen taken by F. N. Chasen at Jor. Camera lucida drawing.

Table showing distribution of Malaysian species.

	Malay Peninsula	Borneo	Sumatra	Java	Other localities
EPALLAGINAE.					
Pseudophaea ochracea Selys.	+				
variegata Ramb.			+	+	
aspasia Selys.			+		
tricolor Selys.		+			
subnodalis Laidlaw.		+			
basalis Laidlaw.		+			
subcostalis Selys.		+			
masoni Selys.	+				
impar impar Selys.	+		+		Anamba Is.
,, *inaequipar* Selys.		+			
bocki Selys.			+		
modigliani Selys.					Mentawi Is.
refulgens Selys.					Philippine Is.
semperi Selys.					Philippine Is.
Dysphaea lugens Selys.		+			
dimidiata Selys.	+	+	+	+	
Paraphaea barbata Martin					Philippine Is.
AMPHIPTERYGINAE.					
Devadatta argyroides Selys.	+	+	+		Philippine Is.
MEGAPODAGRIONINAE.					
Podolestes orientalis Selys.	+	+	+		
chrysopus Selys.		+			
Rhinagrion mima Karsch.	+		+		
borneense Selys.		+			
macrocephala Selys.	+		+		
elopurae MacL.		+			
tricolor Kruger.				+	
philippina Selys.					Philippine Is.
PLATYSTICTINAE.					
Drepanosticta quadrata Selys.	+				
sharpi Laidlaw.	+				
rufostigma Selys.		+			
rufostigma (? race).	+				
sundana Kruger.			+	+	
halterata Brauer.					Philippine Is.
annulata Selys.					Philippine Is.
lastoides Brauer.					Philippine Is.
Protosticta forsteri Laidlaw.	+				
versicolor Laidlaw.		+			
kinabaluensis Laid.		+			
simplicinervis Selys.					Celebes.
gracilis Kirby.					Celebes.

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